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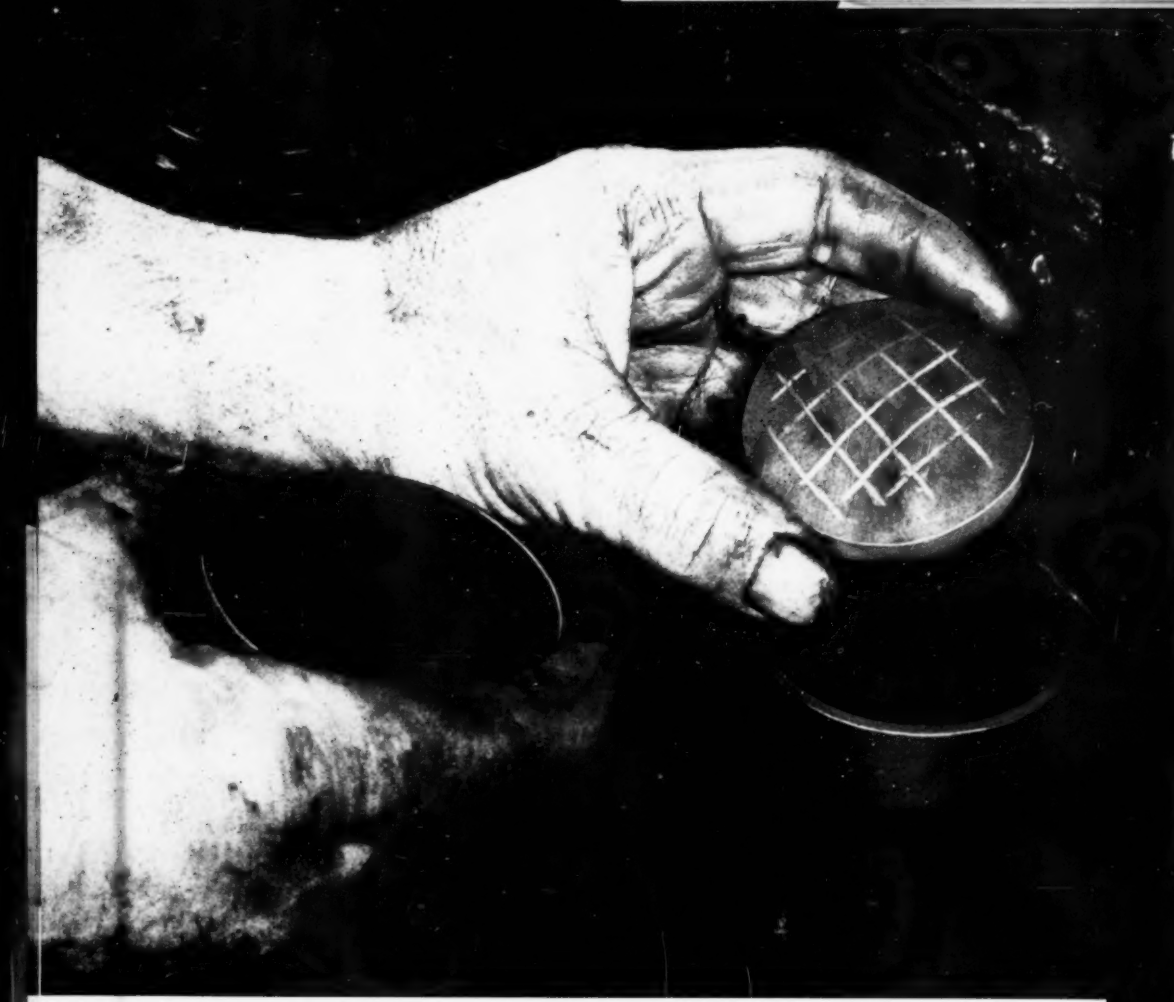

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1. Mayer, L. L.: Arch. Ophth. 39:232, 1948.
2. Thygeson, P., in discussion on Mayer, L. L.: Arch. Ophth. 39:232, 1948.

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FOREWORD

THE objective of the Quarterly Review of Ophthalmology is to bring together in one publication concise but authoritative abstracts of current articles on ophthalmology, according to an all inclusive plan which will include all special, state, and national journals as well as the bulletins of clinics, hospitals, etc., and the transactions of meetings. This will embrace both the domestic and foreign literature.

To assist the reader to locate quickly the articles of current interest all data will be classified and published according to the following systematic plan:

1. Anatomy, Embryology, Heredity, Development and Nutrition
2. Optics, Physiology and Psychology of Vision
3. Physiology, Chemistry and Biochemistry of the Eye
4. Pathology, Bacteriology and Immunology
5. Diagnostic Methods of Examination Biomicroscopy and Photography
6. Ocular Movements and Motor Anomalies, Nystagmus, Reading Disability
7. Anomalies of Refraction and Accommodation, Contact Lenses
8. Conjunctiva
9. Cornea, Sclera and Tenon's Capsule
10. Anterior Chamber and Pupil
11. Uveal Tract and Sympathetic Ophthalmitis
12. Crystalline Lens
13. Vitreous Humor
14. Retina
15. Neuro-Ophthalmology, Optic Nerve, Visual Pathways, Centers and Visual Fields
16. Eyeballs, Exophthalmos and Enophthalmos
17. Glaucoma and Hypotony
18. Lacrimal Apparatus
19. Eyelids
20. Orbit
21. Allergy
22. Anesthesia
23. Aviation and Military Ophthalmology
24. Medical Ophthalmology
25. Pharmacology, Toxicology and Therapeutics
26. Comparative Ophthalmology
27. Tropical Ophthalmology
28. Hygiene, Prophylaxis, Occupational Ophthalmology and Injuries
29. Illumination and Illuminating Engineering
30. Ophthalmic Sociology
31. Education, History and Institutions
32. Miscellaneous
33. Book Reviews
34. Announcements

In each section there will be published a series of annotated references under the heading, "References to Current Articles." To save the reader's time and also to assist in the compilation of bibliographies these references will invariably refer to articles of an academic nature or those making similar reports to abstracts recently published on the same subject. A cumulative index in the concluding numbers of each volume will provide further aid in locating specific references. Constructive criticism will be appreciated.

CONRAD BERENS, M.D.

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OPHTHALMOLOGY AND ALLIED SCIENCES

Volume 5 Number 4

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1. Anatomy, Embryology, Heredity, Development and Nutrition

The Developmental Aspect of Child Vision. *Arnold Gesell, New Haven, Conn.* J. Pediat. 35: 310-16, Sept. 1949.

Information concerning visual development in the fetus has been obtained by studying viable premature infants. It was found that vision develops very early and has a motor basis. Eye movements occur beneath the fused lids as early as the twelfth week of fetal life and they move with increasing coordination for over six months before birth. The fovea is formed four months before birth and the retina assumes the adult form two months before birth. The distance between the fovea and the nerve head remains absolutely fixed regardless of growth of the brain and body. Intrinsic maturation has been found more basic than experience in developing visual behavior. Incipient visual fixation of a near object occurs in the first day of life and sustained fixation occurs in the first week. More distant objects are fixed visually at the end of the first month. The fixational response involves the entire action system to a certain extent, visual scope and complexity being indicated by position of the eyes, head, body and limbs. The visual system becomes more autonomous with increasing maturity but is never entirely independent of the action system. The baby grasps the physical world visually much earlier than manually, fixing a 7 mm. object with his eyes some twenty weeks before he can pick it up with his fingers.

The visual system passes through the developmental stages of infancy, preschool, and school years. Development of the visual function should be examined and supervised throughout these periods without waiting until the child becomes adolescent or grown. Infants indicate their visual individualities in ocular and postural atttudes. Excessive hand regard may indicate a trend toward myopia, whereas delayed hand regard indicates retardation. Even minor complicating clinical conditions may cause temporary or permanent visual defects. For example, strabismus usually indicates a minimal injury which may or may not undergo spontaneous

resolution. Infant behavior patterns require systematic examinations during the developmental years by both specialists and educators.

Visual difficulties are more fully expressed during the preschool years. Serious ineptitudes are revealed in play, use of cup and spoon, etc. Naturalistic observations of spontaneous behavior should both precede and supplement formal visual tests. A tendency to strabismus may be indicated by eye discoordination or by awkwardness. Children with visual defects soon encounter difficulties in school because their patterns of visual behavior are inadequate for the demands made upon their seeing and interpreting equipment. All children undergo a marked visual reorganization after 5 years of age. With our present knowledge, it is difficult to predict probable visual development between 5 and 10 years of age but systematic visual examination and supervision during preschool years aid in anticipating scholastic difficulties. The pediatrican is in a position to recognize developmental behavior patterns indicative of latent visual difficulties which may require specific guidance or reference to a specialist. 0 references.

The Circulation of the Brain and Eye and Their Connection (*Összefüggés a szem és agy vérkeringése között*). *F. Kiss, Anatomical Institute, University of Budapest, Hungary.* Szemészet 86: 133-43, 1949.

This paper is a continuation of the author's previous contributions to the subject (Opthalmologica 106, No. 5 6, 1943 and Szemészet 85, No. 1., 1948). The relation of the ophthalmic vein to the intracranial sinus system is quite similar to that of the cerebral veins. The periodic intrathoracic negative pressure extends—via internal jugular vein—to the whole sinus system with all its veins.

India ink injected into the A.C., described by the author previously, was absorbed by the ciliary plexus as well in animals as in fresh human corpses. Here the pumping effect of the thorax was substituted by artificial means. When India ink was injected into the A.C. of a living human eye twenty-five minutes before excision of the tumor, the granules were similarly absorbed by the plexus. The canal of Schlemm is only an accessory apparatus in the process of absorption. Pigment cells were demonstrated in the same plexus in an eye excised because of intra-ocular malignancy; this represents the way of metastasis.—*de Grósz.*

The Mandibulo-Facial Dysostosis. A new hereditary syndrome. *A. Franceschetti and D. Klein, Geneva, Switzerland.* Acta Ophth. 27: 143-224, 1949.

The authors present a detailed study of a syndrome which so far has not been given the important place it deserves in the standard treatises of pathology. The main characteristics of this syndrome are the following: 1) palpebral fissures sloping downwards laterally ("antimongoloid" direction), with a coloboma in the outer portion of the lower lids and more rarely in the upper lids; 2) hypoplasia of the facial bones, especially the

malar bones and the mandible; 3) malformation of the external ear, and occasionally of the middle and inner ears; 4) macrostomia, high palate, abnormal position of the teeth with open bite; 5) blind fistulas occurring in a line drawn from the labial commissures to the ears; 6) a typical hair growth in the form of tongue-shaped hair processes extending towards the cheeks.

The authors describe 6 cases, 4 presenting a typical syndrome, one a unilateral case, and one an atypical form. They estblish a classification of the syndrome according to the degree of manifestation, review the literature on the subject, and discuss the embryologic and hereditary factors concerning this malformation. The authors hope that the clinical classification they have introduced and the new term they have proposed will arouse the interest of different specialists in this as yet little studied entity and help in the diagnosis even of abortive cases. With the description of the mandibulo-facial dysostosis, a new and independent type of cranial dysmorphia can be added to the classical forms. (Crouzon's cranio-facial dysostosis, acrocephalo-syndactyly of Apert, cleido-cranial dysostosis).

Bilateral Microphthalmia. *J. A. Keen.* South African M.J. 23: 318-20, 1949.

After some remarks about the nature and the formal genesis of congenital microphthalmia, the author describes the case of a Negro baby, who died from acute bronchitis at the age of 7 months. The eyes appeared to be absent and the lids were closed. Several other malformations were present (cleft palate, syndactylism, umbilical hernia). At autopsy the brain was removed for further study, but it was not possible to remove the orbital contents. The optic nerves were much smaller than normal. They entered the orbits and soon broke up in a mass of pale yellow, fatty tissue. The optic tracts, too, were reduced in size and the lateral geniculate bodies were nearly completely absent. The cortex around the midportion of the postcalcarine sulcus showed no visual stria. In other respects, the brain was normal. Its weight was nearly the same as that of a normal baby of the same age and the medical geniculate bodies and the pulvinar were as large as in a control. 5 figures. 8 references.—*A. Jokl.*

2. Optics, Physiology and Psychology of Vision

Prismatic Effect in Ophthalmic Lenses. *Haddy S. Hasso.* Optometr. Week. 39: 2191-2193; 2261-2263; 2333-2335; 2401-240; 40: 45-47, 197-199, November 1948—February 1949.

Sometimes it becomes necessary to find the prismatic effect of a specific point in a sphero-cylindrical lens, or to decenter such a lens to create a certain amount of prism in some desired direction. A knowledge of vector mathematics is essential in order to arrive at the exact answer. It has been proved that Prentice's formula ($\sin^2 e$) for finding the prismatic power in sphero-cylindrical lenses is incorrect, and usually leads to the wrong answer. Yet, this formula is still widely used in optometric practice.

It was realized that a vector slide rule would simplify the calculations involved in prismatic effect problems. The prismatic effect computer, developed by the author, proved to be indispensable, not only for optometry, but for other allied sciences. The entire solution of a vector problem is easily set up on this rule, and the answer is read directly.—*Author's abstract.*

Experimental Investigation of Vertical Fusion. *Vincent J. Ellerbrock, Ohio State University, Columbus, Ohio.* Am. J. Optometr. 6: 388-99, Sept. 1949.

For this study an instrument was employed with which vertical fusional movements could be induced and the positions of the eyes measured to an accuracy of ten minutes. The different factors which influence the inducement of the movements were investigated. It was found that the adequate stimulus for a vertical fusional movement is a vertical disparity of horizontal parallel borders on the two retinas. This was shown in experiments with disk-shaped stimuli of unequal size and those in which the borders of one or both fusional stimuli were blurred. Evidence also was presented which demonstrated that fusional movements cannot be equally induced by images located at different portions of the retinas. The possible roles that attention might play in the inducement of these movements were discussed. It was concluded that attention is not a necessary condition for their elicitation. 10 figures. 4 tables.—*Author's abstract.*

Diagnostic Significance and Meaning of Retinal Rivalry. *Harold H. Siegel, Niles, Mich.* Optometr. Week. 40: 115-16, Jan. 1949.

Retinal rivalry rate is the rate of change of perception of two sets of diagonal lines placed at 45 and 135, presented simultaneously and separately to both eyes while open. Retinal rivalry is construed here as a binocular test of visual figure ground organization. Normal phenomenal visual behavior is an integrative entity. The organization and distribution of figure ground is based on functional values. Figure is dense, compact, and intensively organized into a coherent matrix resistant to change in form, with high energy valence. The area surrounding the contour of figure adjacent to the ground must be qualitatively almost equal to the functional value of figure under conditions of isolation. Under normal conditions, however, the addition of total normal phenomenal ground results in an organization that limits this functional valence and permits figure to remain ascendant. This deduction is based on the work of Goldstein, Kohler, and the Gestalt principles.

If part of the neutralizing ground is isolated and rendered impotent by the artificiality of the test environment plus the lack of any aim or significance of the test to the subject, the diagonal lines that are not perceived by the subject must be construed as the residual ground adjacent to the perceived figural lines. If the rivalry rate is high we can assume that either set of lines must be of almost equal functional value and their

conflict for ascendancy for figural seeing creates a fast rate. If there is an interference in the functional organization of figure and ground as a result of eyestrain or improperly applied lens application, the adjacent ground under isolation loses its functional valence and the perceived figure remains conscious a greater period of time with a reduction in rivalry rate. Therefore, retinal rivalry can be used as a criterion to determine the degree of deterioration or improvement in visual performance through the intervention of lenses or visual training.—*Author's abstract.*

Standardization of Lens Shapes. *Glenn A. Fry, Ohio State University, Columbus, Ohio.* Optometr. Week. 39: 2337-39, Dec. 1948.

The system of classifying and designating lens shapes recommended by Spooner and that recommended by Chappell and Sasieni are described and discussed. A proposal is made for the standardization of lens shapes which involves the establishment of some agency for the registration of shapes, and a system is proposed for limiting the number of shapes. It is proposed that shapes be classified by designating "general shape" and "differences". Two methods are presented for the precise geometric description of shapes.—*Author's abstract.*

Gullstrand's Schematic Eye and Emmetropia. *J. I. Pascal* ,Optometr. World 37: 28, Feb. 1949.

The schematic eye is a representation of the average, adult, normal, emmetropic eye. Gullstrand's schematic eye is 24 mm. long but the second principal focus of the eye (F_2) is 24.387 mm. from the cornea. Therefore, his schematic eye is about 1.00 D. hyperopic for paraxial rays and it is for these rays that all the cardinal points of the system have been calculated. Because of the spherical aberration of the eye, there are different focal points for the paraxial, the intermediate, and the peripheral rays. In Gullstrand's schematic eye, emmetropia is a condition where the intermediate rays focus on the retina; the paraxial rays focus about 1.00 D. behind and the marginal rays some distance in front. In a physiologic sense, the image is "focused" on the retina as the image cannot be improved by any plus or minus lens which would move the whole ray bundle forward or backward. The schematic eye, therefore, on the basis of physiologic emmetropia is 24 mm. long, while on the basis of paraxial "optical emmetropia" it would have to be 24.387 mm. long.—*Author's abstract.*

Fusional Vergence. *Edwin Forbes Tait, Norristown, Pa.* Am. J. Ophth. 32: 1223-30, Sept. 1949.

The fusional process in vision is a twofold entity. It is, first, concerned with sensory perception, which is that which should properly be designated as "fusion", and, second, with the varying of the position of the visual axes of the eyes in order to retain single binocular vision, which should be considered as "fusional vergence". Fusional vergence may be defined as the

modification produced by the fusional process in the distribution of tonic reciprocal innervation to the extra-ocular muscles, in order to preserve or to gain single binocular vision.

The author reports on 500 subjects, who were selected as normal individuals in view of the fact that they possessed clear, comfortable and efficient single binocular vision, and were using suitable glasses, if needed. Prism convergence break and recombination tests, and prism divergence break and recombination tests were carried out with extreme care under certain standard conditions. Results were recorded with suitable allowance for the experimental variations and the patient's reaction time. The data show that in a group of 500 subjects, as prism convergence is increased, more persons will fail to maintain fusion. At 26 to 28Δ only 10% can still maintain fusion, but of these few, some can overcome as much as 38 to 40Δ. The mid-point of the range is about 18 to 20Δ. With prism divergence, half of the subjects cannot maintain fusion with as much as 12 to 14Δ, although 10% can go as far as 18 to 20Δ, and some can go as far as 22 to 24Δ. After the break, and the consequent diplopia, the prism power is reduced until, eventually, fusion is regained. With prism convergence, over 10% of the patients will regain fusion when 10 to 12Δ remain, and 100% have regained fusion at 2 to 4Δ. With prism divergence, the extramacular fusion area is apparently smaller, as only 20% have regained fusion at 6 to 8Δ, 50% at 4 to 6Δ and the remaining 30% at 2 to 4Δ.

The data suggest that the response of the extra-ocular muscles to gradually increased prism power base-out or base-in, is dependent primarily upon the stimulation of receptors which immediately encircle the macular area. Reversion to fusion, however, once diplopia has been established, is dependent upon the sensitivity of more peripheral receptors than the perimacular ones, and the area in which these are found is considered as the extramacular fusion area. On the basis of these studies, we may consider perimacular and extramacular receptors, and the ocular movements which result from their excitation, as the essential parts of the stimulus-response mechanism which is charged with the maintenance of single binocular vision. Using the results of the reversion to fusion tests, it is possible to plot the linear dimensions of the extramacular fusion area upon each retina under given conditions of fixation and stimulation. In general, it was suggested that the function of the perimacular fusional receptors, those immediately surrounding the macula, is to retain single binocular vision once it is established, while the function of the extramacular fusional receptors, further in the periphery, is to aid in obtaining single binocular vision.

The use-amplitude fraction in fusional vergence is described and defined as the amount of fusional vergence constantly in use (in order to correct the faulty position of the visual axes for the point of fixation), over the amplitude of fusional vergence available in the same direction. In esophoria, relative to fixation at 6 M., for example, a patient has a constant repeated stimulation of his nasal perimacular receptors of either

or both maculae. If he has an adequate amplitude of fusional convergence, which means a sufficient number of perimacular receptors available, his esophoria may be compensated for without difficulty. The use-amplitude fraction may be used practically in orthoptic problems to determine the probability of comfort or discomfort in binocular vision, and also to indicate the extent to which the fusional vergence amplitude values will have to be developed in order to compensate for heterophoria. 8 references. 3 figures. 2 tables.—*Author's abstract.*

The Psychology of Spatial Projection. *Joseph J. Carlson.* Optometr. Week. 40: 305-09, 349-53, 447-60, Mar. 1949.

Physiocentric projection, wherein the physical eye acts as both camera and projector, is the innate process governing binocular spatial perception. As a result of this process, the two projected images of all points in space are projected to the same place in space. If, however, the two images were permitted to reach binocular consciousness, an irrational single binocular effect of the entire binocular field would result. That is, an object point in the visual field, seen as single binocularly, would appear, at one and the same time, either to obstruct the view or have the view obstructed by two laterally separated object points elsewhere in space (and also seen single binocularly) that happen to fall, one on each of its two projected visual lines (one from each eye). To avoid this, the physiocentric projector resorts to selective suppression (suppression of the more disparate image). Thus, the suppression encountered in physiocentric projection is activated by an effort to overcome this irrational single binocular effect and not by a desire to overcome diplopia. In fact, when for some reason the two images are forced upon binocular consciousness, the physiocentric projector shifts the center of projection of at least one eye in order to obtain diplopia rather than tolerate the incongruity in perceived space that would result otherwise.

As the visual acuity of the macula areas develops and the demand for exact bifoveal fixation increases, selective suppression on the plane of fixation becomes more and more difficult (since selective suppression depends upon a disparity between the two retinal images). When suppression becomes impossible, there are two available means of escape. One is to develop cyclopean projection, and the other is to develop a squint. If cyclopean projection develops, then bifoveal fixation becomes possible and the plane of fixation is coincident upon the horopter surface. All points on the horopter are seen binocularly through cyclopean projection, whereas those points that are seen single binocularly, which do not fall on the horopter, are seen so through physiocentric projection. The effect is accurate stereoscopic appreciation of those points. If cyclopean projection does not develop, bifoveal fixation is impossible and a squint will manifest itself. The effect of the squint is to establish sufficient disparity between the two retinal images to permit selective suppression. The mode of spatial perception will then be confined to physiocentric projection to which the

definitive anomalous projection is erroneously applied (since physiocentric projection is innate).—*Author's abstract.*

The Coefficient of Specific Resolution of the Human Eye for Foucault Test Objects Viewed Through Circular Apertures. *Howard S. Coleman, Madeline F. Coleman, David L. Fridge and Samuel W. Harding, University of Texas, Austin, Tex.* J. Optic Soc. America 39: 766-70, Sept. 1949.

The authors investigated the ability of the human eye to resolve Foucault test objects (grids of alternate black and white lines of equal width) when artificial pupil size, test object contrast, wave length of illuminant, test object size, and test object shape were experimentally varied. Thirty-two observers of both sexes, with ages varying from 18 to 76 years, were used. Age and sex were found to have no influence on the resolving ability. Among the specific conclusions drawn from the experiments were: 1) the minimum angle of resolution occurs for an artificial pupil stop diameter of 2.5 mm. A 2.5 mm. artificial pupil somewhat improves the resolution of the human eye; 2) for artificial pupil stops smaller than 0.75 mm. in diameter, diffraction of light seems to be the major factor in reducing resolution, rather than aberration of the eye; 3) Foucault test objects having a larger number of elements are more easily resolved; 4) illumination of the test targets by green mercury light results in a slightly smaller angle of resolution than by incandescent tungsten filaments.—*Author's abstract.*

3. Diagnostic Methods of Examination, Biomicroscopy and Photography

An Electrical Remote Control for the Revolving Astigmatic Cross. *Horace L. Weston, Detroit, Mich.* Am. J. Ophth. 32: 1272, Sept. 1949.

An electrically operated astigmatic cross has been devised which can be revolved to any desired axis by remote control. This is accomplished by means of paired selsyn generators obtainable through war surplus outlets. 2 figures.—*Author's abstract.*

4. Ocular Movements and Motor Anomalies, Nystagmus, Reading Disability

Hyperphoria and the Abduction Test. *George T. Warren.* Optic. J. & Rev. Optomet. 85: 35-6, Oct. 1948.

One of the easiest things to overlook is a hyperphoria, for its rare occurrence tempts the refractionist to skip the tests which might reveal it. Thus many a patient is doomed to years of ocular discomfort when so simple an expedient as a 1Δ base-up or down in his lenses would have erased such discomfort entirely. A year or so ago we found a simple

question to ask patients which instantly gives an inkling to this type of trouble. When the abduction is being taken and the break occurs, the refractionist merely asks, "Of the two objects you now see on the screen, is one any higher than the other?" If the answer is in the affirmative, then this is the clue to investigate further.

A vertical deviation should always be searched for when a patient's adduction and abduction are both abnormally low. Should such a deviation be uncovered and corrected, then an adduction of only 10Δ and an abduction of only 4Δ may easily rise to 20 and 8 respectively. Prism for correction or prism for training can be tried out in a slip-over. This saves expense until one is sure of precisely what permanent or semi-permanent steps ought to be taken.—*Author's abstract.*

5. Anomalies of Refraction and Accommodation, Contact Lenses

Analysis of Clinic Data. *Meredith W. Morgan, Jr.* Optometr. Week. 39: 1811-1814, 1843-1847, Sept. 2 and 9, 1948.

A statistical analysis of 800 refractions was made on nonpresbyopic subjects. This was further checked on an additional 500 subjects. The mean and standard deviation of each measurement were determined, as well as the coefficient of correlation of each test with all the others. The coefficients of correlation fell in the range from 0 to ± 0.8. In no case was the coefficient high enough to use for purposes of prediction.

If only the sign of the coefficient of correlation is used, the tests may be divided into three groups; each test is related to its fellow tests in the same group by the same sign. Tests in group A are related inversely to those in group B, while those in group C are either independent or related both positively and negatively to different tests in each of the other groups.

The groups found are:

	Fixation Distance
Group A.	
Base-in prism to blur	40 cm. and 6 M.
Base-in prism to break and recovery	40 cm. and 6 M.
Minus lens to blur	40 cm.
Amplitude of Accommodation	
Group B.	
Base-out prism to blur	40 cm. and 6 M.
Base-out prism to break and recovery	40 cm. and 6 M.
Binocular Cross Cylinder Add	40 cm.
Monocular Cross Cylinder Add	40 cm.
Dynamic Skiametry Add	40 cm.
Plus lens to blur	40 cm.
Group C.	
Phoria	6 M. and 40 cm.
Accommodative-Convergence / Accommodation Ratio	

—*Author's abstract.*

Visual Training for Plus Acceptance at the Nearpoint. *Jack N. Spellicy.* Optometr. Week. 39: 2125-2127, Nov. 1948.

In industry it is frequently found that hyperopic workers who suffer visual discomfort and lowered achievement while using their eyes at the nearpoint are not aided by wearing plus-lenses. Some are actually hindered by their use. The nearpoint nets (from 14B findings) were found to be in minus lens power in a study of these cases. The farpoint subjective findings, however, were in low plus amounts.

Visual-training was proved to be the most reliable method of successfully handling these problems. The effect of training was demonstrated by two typical cases. The patients were each given a standard routine of visual-training for a period of approximately three months. At the end of that time, their nearpoint nets had shifted from minus to plus lens power. Plus-lenses for near were prescribed for each and were worn with complete comfort and improved performance.—*Author's abstract.*

Subnormal Vision Device Augmenting Palliative Treatment of Hypertension. A Case Report. *Harold L. Friedenberg.* Am. J. Optometr. 26 (5): 212-14, May, 1949.

The course and sequelae of a typical hypertensive retinopathy are pictured, and the importance that a subnormal vision device plays in the mental attitude of the patient is described. Detailed description is given of a near-point telescopic system which can be set up for the patient at a minimum cost.—*Author's abstract.*

Pupillary Changes Associated With Accommodation and Convergence. *Henry A. Knoll, School of Optometry, Ohio State University, Columbus, Ohio.* Am. J. Optometr. 26: 346-56, Aug. 1949.

This study was designed to establish the relationship of pupil constriction to accommodative convergence and fusional convergence. A simultaneous record was made of total convergence, accommodative response, and pupil diameter while the subject observed a target at a fixed distance and the lines of sight were gradually diverged or converged from the phoria position to the break points. The experiment was performed on a modified haploscope. A continuous record of convergence and accommodative response was obtained, and the pupil was photographed every two degrees of convergence by means of infra-red photography.

A pupil response associated with accommodation and accommodative convergence was found in each of the 10 subjects used. It was found in 4 of the 10 observers that pupil changes are associated with changes in fusional convergence. When present, the pupil constriction associated with fusional convergence is less than that associated with accommodative convergence. The response associated with fusional convergence is increased as the accommodative level is increased. 21 references. 4 figures.—*Author's abstract.*

Accommodation and Convergence With Contact Lenses. *Mathew Alpern, School of Optometry, Ohio State University, Columbus, Ohio.* Am. J. Optometr. 26: 379-87, Sept. 1949.

The difference in position of the ametropic correction of a contact and of a spectacle lens accounts for a difference in the accommodative stimulus for the same eye focusing an object located at the same distance when the one type of optical correction is used in comparison with the other. A bespectacled myopic subject must accommodate less (and a bespectacled hyperopic subject more) to focus a given object than when the ametropia is corrected by a contact lens. Curves depicting the amount of this effect for various stimulus levels of accommodation (10D., 5D., 4D., 3D., 2D., 1D.) are presented.

The prismatic effect induced by eccentric fixation with spectacle lenses is of such a magnitude and direction as to minimize any difference in fusional convergence in the two situations brought about by a difference in accommodative convergence. Implications of these results on the adjustment of patients to contact lenses, the fitting of presbyopic patients with contact lenses, and the optical therapeutics of anisometropia are discussed briefly. 6 references. 5 figures.—*Author's abstract.*

A Sensitometric Method of Refraction—Theory and Practice. *Matthew Luckiesh and S. K. Guth, Cleveland, Ohio.* Am. J. Optometr. 26: 367-78, Sept. 1949.

This paper describes a subjective technic of refraction originated by Luckiesh and Moss, which involves the use of a brightness-contrast threshold in place of the usual acuity threshold for the determination of the dioptric power producing maximal visibility. An especially designed fixation target provides an adequate stimulus for binocular convergence and a minimal one for accommodation. By determining the visibility of a special biconcave test-object when viewed successively through each of a series of trial lenses, it is possible to determine graphically the dioptric power required to produce maximal visibility. An extended series of exploratory tests has indicated that the sensitometric method: 1) maintains adequate control of convergence; 2) avoids stimuli for accommodation; 3) uses identical procedures for near and distance; 4) is based upon an absolute and fundamental criterion of emmetropia; 5) eliminates the necessity of applying compromises and biases by the refractionist; 6) has an inherent high degree of precision.

A comparison is made of the results on 175 cases obtained with the Luckiesh-Moss Ophthalmic Sensitometer as a supplementary subjective test at the near point, and those obtained with the usual technics of refraction. Refractive errors indicated directly by dynamic sensitometry are in the same direction and of similar magnitude as those indicated by the usual methods after the application of various expedients in the latter procedures. 7 references. 6 figures. 4 tables.—*Authors' abstract.*

A Case Study of the Changes of Refraction Accompanying the Changes of the Concentration of Sugar in the Blood. *C. W. Weeks and George A. Parkins.* Am. J. Optometr. 26: 199-201, May 1949.

The patient, whose refraction held steady for a period of eight years, reported May 31, 1948, complaining of difficulty seeing at a distance, extreme nervousness, rapid fatigue. At this time, she showed 1.25 D. less hyperopia than on previous refractions. The fundus was normal and all media clear. She was referred for a general physical which showed normal basal metabolism, normal heart and normal blood count. The urine was highly acid and showed some sugar. There were 253 mg. of sugar per 100 cc. of blood. She was placed on a diet and given insulin, hospitalized for three days, then allowed to go home with instructions to report on June 9. On this call, the blood sugar was 120 mg. per 100 cc. of blood. The hyperopia had returned to the normal amount, a change of 1.25 D. within a period of ten days. She had some difficulty arriving at a suitable amount of insulin and establishing a suitable diet.

She reported on nine different occasions at two-week intervals, showing variations in blood sugar of 86 to 253. As the blood sugar approached normal, she became more hyperopic; as her blood sugar raised, she became less hyperopic.

She accepted 1.50 D. more plus sphere when the blood sugar was 86 than when it was 235 mg. per 100 cc. of blood.—*Author's abstract.*

A Report on Three Cases of Aniseikonia. *Oscar L. McCulloch, Holyoke, Mass.* Am. J. Optometr. 26: 338-43, Aug. 1949.

The author reviews three cases selected from his practice in which distressing symptoms of long duration had been relieved by the correction of the aniseikonia measured by the Standard Eikonometer. With the return of the symptoms about two years later, re-examination with the same instrumentation revealed the disappearance of the aniseikonia and full relief was obtained in each case with the wearing of a regular refractive correction alone. In each case, the degree of aniseikonia initially measured, and the sensitivity of the patient, were significant. Age, psychoneurosis, and anisometropia were presumably excluded as being possible explanations for these changes.—*Robert E. Bannon.*

Hereditary Myopia. *Karl C. Wold, St. Paul, Minn.* Arch. Ophth. 42: 225-37, Sept. 1949.

The theories concerning the etiology of myopia for the last three centuries have been outlined in chronologic order, beginning with Kepler's belief (in 1610) that the influence of near work, which requires accommodation and convergence, was a factor, and terminating with the more modern theories by Steiger, Lindner and Grunert. Anatomic types of myopia have been divided into: 1) axial; 2) those of abnormal

refraction. Etiologic types are: 1) acquired myopia due to disease and trauma; 2 inherited myopia. Seventy-three newborn infants less than seven days old were examined and two were found to be myopic (2.7%).

A careful study was made of 258 kindred from personal files in which at least two generations of proved myopia or of myopia in different and related families of the same generation were found. The following data were obtained: 1) with neither parent myopic, 230 of 645 children, or 35%, were myopic of a recessive character; 2) with one or both parents myopic, 309 of 628 children, or 49%, were myopic. In these children the trait was dominant. Eleven interesting kindred are charted. There are two types of myopia according to these findings: 1) hereditary, which may be dominant, recessive or sex linked, and in that order; 2) acquired due to disease or trauma. 11 references. 2 tables. 6 charts. —*Author's abstract.*

Plastic Lenses Made of Thermosetting Resins. *Robert Graham, Los Angeles College of Optometry, Los Angeles, Calif.* Am. J. Optometr. 26: 358-60, Aug. 1949.

The low specific gravity of the optical plastics makes possible spectacle lenses which have only half the weight of glass equivalents. The high impact resistance of these new media permits lenses with a greater eye-safety factor than that of case-hardened goggles. These properties have heretofore been largely offset by the susceptibility to abrasion of the soft thermoplastic resins from which such lenses have been made.

It is the purpose of this paper to report the development of lenses which retain in substantial measure the lightness and safety of previous plastic lenses and which, at the same time, possess a resistance to abrasion forty times that of their predecessors. So great a hardness reduces the problem of abrasion to relative insignificance. A method of utilizing the hard, thermosetting optical resins in the making of lenses has made possible this improvement. In addition to their hardness, such lenses are clearer than the finest glass and over four times as resistant to fogging. They withstand attack by all of the common chemicals better than glass and are ten times as resistant to welding spatter and flying particles from grinding wheels. 1 table.—*Author's abstract.*

6. Conjunctiva

Combined Action of Sulfonamide and Urea Lotions in Conjunctivitis (*Action conjingées des collyres sulfamidés et des collyres à l'urée dans les conjunctivités*). *Van Lint and Allaerts, Brussels, Belgium.* Bruxelles méd. 29: 1816-19, Aug. 21, 1949.

In the treatment of various types of conjunctivitis the instillation of one drop of 5% urea lotion was followed a minute later by the instillation of a 5% sulfonamide solution (exosulfonyl); treatments were given four times a day. The 5% urea solution was well tolerated in all cases.

This treatment was not effective in acute and subacute conjunctivitis, but in cases of chronic conjunctivitis, which had been treated by other methods without benefit, the results of the urea-sulfonamide therapy were much better. In 100 cases of this type, 66 were cured, and 28 of these have shown no recurrence in a period of three to four months. It was found that with the use of the urea solution the concentration of sulfonamide in the aqueous humor was definitely increased, as compared with cases treated with instillations of sulfonamide solution alone. While the authors have employed the urea-sulfonamide instillations only in the treatment of conjunctivitis, they suggest that since urea has been found to increase the penetration of the sulfonamide into the ocular tissues, this treatment might also be tried in intra-ocular infections. 2 references.

(*The potentiating effect of urea on topical sulfonamide action seems to be well established. Urea and sulfonamide solution, however, has the same limitation in chronic conjunctivitis that is inherent in any chemical agent in an aqueous vehicle; it fails to wet the lid margins, which are the primary source of infection in the majority of cases of chronic catarrhal conjunctivitis.*—ED.)

Etiology of Trachoma. *Yukihiko Mitsui, Kumamoto, Japan.* Am. J. Ophth. 32: 1189-96, Sept. 1949.

The article is based on a series of investigations performed under the guidance of Professors Shinobu Ishihara and Takeo Tamiya at Tokyo University. (1) Materials from chronic trachoma were inoculated into 31 cases; results were positive in 26. The initial stage was always an acute follicular conjunctivitis, which went over to the chronic form within from one to three months. Inclusion bodies (I.B.) were found without exception. (2) The total of 823 cases of chronic trachoma were studied and I.B. were found in 573 of them. Among 392 typical cases, however, 336 were positive for I.B., the positivity paralleling the trachomatous symptoms, i.e., the number, turbidity, and confluence of the follicles. (3) Tissue sections were positive for I.B. in 108 of 117 cases. The I.B. were found in the epithelial cells at the top of the follicles and were found in the subconjunctival tissues. (4) Materials from subconjunctival tissues of trachomatous cases (I.B. positive) were inoculated into 10 eyes of 6 cases. The results were all negative. Two control inoculations, for which the inoculum was taken from the epithelium from two of the same donors, were positive. (5) Subconjunctival inoculation with trachoma through the skin failed to produce trachoma in 10 cases, whereas a control instillation of the inoculum into a conjunctival sac was positive. (6) A method for provocation of the disease was utilized, and it was demonstrated that the I.B increased or decreased in parallel with the clinical symptoms. (7) Tissue cultures were studied, and the I.B. seemed to grow in cultivated tissues. The cultivated tissue with I.B. introduced into the human eye in four cases resulted in trachoma; subcultures, however, failed to succeed. (8) The relationship between trachoma and

inclusion blennorrhea was studied as follows: trachoma in the newborn (inoculated into 4 eyes) was compared with spontaneous inclusion blennorrhea (18 newborn cases). The trachoma in the newborn was quite different from that of the adult but identical with the inclusion blennorrhea of the newborn, both clinically and microscopically. Adult inoculations (10 eyes) from inclusion blennorrhea resulted in a conjunctivitis similar to that resulting from adult inoculations from trachoma. In 7 cases the two diseases were inoculated into the 2 eyes of the same individual. No essential difference between the 2 was observed. Inoculation of the female genital tract with trachoma was performed in 2 cases with positive results. Trachomatous changes with I.B. were demonstrated in the cervical canal. Materials from the cervical canal resulted in trachoma in two eyes. From all of these facts the author concluded that both diseases must be results of the same infection, and that the infectious agent must be Prowazek's inclusion bodies. (9) Trachoma materials (prepared in emulsion and injected with a lacrimal syringe) were introduced into 6 lacrimal sacs. After a certain period the sacs were removed and examined. Trachomatous changes were demonstrated in all of them, and I.B. were positive in 5 cases. Lacrimal sacs from cases of conjunctival trachoma were removed and examined. The I.B. were found in 5 of 6 sacs from cases of early conjunctival trachoma; in 2 canaliculi from the same cases, in the only sac from inoculated conjunctival inclusion blennorrhea, and in one of 13 sacs from conjunctival trachoma in its late stages. No I.B. were demonstrated in sacs with socalled chronic dacryocystitis. 24 references. 4 figures. 1 table.—*Author's abstract.*

(*These extremely important studies on the etiology of trachoma are unique by virtue of the number of human inoculations performed. Monkeys and apes, while susceptible to the disease, develop only a follicular conjunctivitis without pannus and cicatrization and are therefore of little value. The many similarities between trachoma and inclusion conjunctivitis are well-known but repeated studies by many observers have shown that inclusion conjunctivitis differs fundamentally from trachoma in the lack of corneal involvement and scar formation and in the spontaneous healing which invariably occurs. In other respects these studies seem to be open to little criticism.*—ED.)

An Epidemic of Keratoconjunctivitis Among Workers in Metal Factories near Paris (La Kerato-conjonctivite épidémique des ouvriers des usines de méetallurgie de la région parisienne). *A. Hadengue. Paris, France.* Presse Méd. 57: 482-483, May 28, 1949.

In December, 1948 a large outbreak of keratoconjunctivitis appeared suddenly in an important factory near Paris. The disease was considered new and gave rise to much anxiety among the workers. It was indeed the first outbreak of this disease entity in France although it is known well in other parts of the world, especially Germany, Austria, Hawaii, the continental United States, and the Pacific regions.

During the last war the illness appeared in 1940 in Germany, then Italy, and in 1941 several thousand cases were observed in Hawaii. The

outbreak spread to the West Coast of the United States and was particularly prevalent in the Naval shipyards around San Francisco, where it received the name "shipyard conjunctivitis". The disease jumped to the East Coast of the United States in 1942, without causing cases anywhere but in coastal regions. A somewhat different geographical pattern was followed in France: cases appeared in factories along the river Seine but not in the sea ports. The seasonal distribution has always been typical, with a peak during the winter and subsidence of the outbreaks in the spring.

The clinical features of the disease are well defined. The incubation period is from five to seven days. The first symptom is ordinarily believed to be a foreign body sensation on the conjunctiva. The scratchy sensation does not subside in spite of attempted removal of that foreign body and suddenly a conjunctivitis, particularly of the lower lid, makes its appearance. There is little exudate but preauricular lymph node enlargement is characteristic. The conjunctivitis becomes follicular, with occasional false membrane formation, and subsides in from eight to twenty days.

The essential characteristic of the illness is a punctate keratitis which makes its appearance as the conjunctivitis subsides. The punctate or nodular lesions evolve slowly and may take many months to subside. While their course is a benign one, they frequently result ultimately in opacities which reduce visual acuity seriously. The conventional methods of treatment probably do not influence the course of the disease greatly. Convalescent serum, administered in the first few days of the conjunctivitis, occasionally prevents the keratitis. Aureomycin has been claimed to be of distinct benefit.

Keratoconjunctivitis usually appears in connection with exposure to finely divided sharp particles in dust, particularly metal dust. This presumably acts as an irritant and precipitates the tissue reaction to the infectious agent. The latter is a virus which can be isolated from the tears, secretions, and corneal scrapings. Transmission usually takes place through the agency of hands, communal towels, goggles, and improperly sterilized instruments of physicians and nurses. Thus the prime factor in controlling an outbreak and preventing further spread of the infection is maintenance of the strictest precautions on the part of medical personnel, and on the insistence on individual, disposable towels and soap and on individual goggles for the workers.

Since virtually all outbreaks have been located at factories or shipyards, and have been associated with welding or grinding procedures, it must be concluded that these factors contribute materially to the development of the disease, although it is ultimately due to an infectious agent. Since the illness is always associated with a definite occupational hazard, it must be considered medico-legally as an occupational and compensable disease. 2 references.

(The term "epidemic keratoconjunctivitis" appears to be an ideal one for this extraordinarily communicable disease, and the term "superficial punctate keratitis", although originally applied to it by Fuchs,

would seem more applicable to a specific type of chronic epithelial keratitis which has minimal conjunctival symptoms and is probably caused by a virus. The extreme communicability of epidemic keratoconjunctivitis is well illustrated by the accidental infection of more than 30 ophthalmologists and general physicians in the United States and by numerous office infections which have resulted from contaminated solutions, tonometers, etc.—ED.)

7. Cornea, Sclera and Tenon's Capsule

Perforating Injury of the Cornea by a Fish Hook (*Ferimento perfurante da cornea por anzol*). *Paulo Braga de Magalhães and Avelino Gomes da Silva, São Paulo, Brasil.* Arq. brasil. de oftal. 12: 55-61, 1949.

A man 19 years old was struck in the right eye by a fish hook. The cornea was pierced but there was no injury to the iris, ciliary body or lens. Four hours after the accident, the hook was extracted by enlarging the wound with a keratome, and a sliding conjunctival flap was formed. Following the operation, neutral atropin sulfate, 1%, was instilled and tetanus antitoxin and 6,000,000 I.U. of penicillin were administered. At the time of discharge, visual acuity, which at first permitted only perception of light, had increased to 6/10. Reference is made to two other cases reported in the literature. 2 references. 4 figures.

A Study of Superficial Punctate Keratitis with an Allergic Etiology. *Samuel J. Taub, Robert E. Miller and Robert G. Taub, Chicago, Ill.* Am. Pract. 3: 739-42, Aug. 1949.

This is a report of 19 patients of a larger series of 30 allergic eye conditions who had superficial punctate keratitis to which we could attribute an allergic etiology. These patients suffered no recurrences and in almost every instance the condition cleared rapidly without further damage to the eye. An accurate history, eye smears, blood counts (eosinophilia) and findings of other allergic manifestations should convey the possibility of an allergic basis when dealing with a patient suffering from superficial punctate keratitis. Many of the patients in this series had other allergic manifestations. The eye responds readily to an antigen and therefore should be included as one of the prime shock tissues of the body. The antihistaminic drugs failed to relieve the condition in most instances and rarely had any therapeutic value. Local antihistaminic drugs afford but little relief through their anesthetic action and their usual action. Particularly, the physician should exercise caution locally because the eye readily becomes sensitized to medication when an allergic state has been established and the antihistaminic drugs are fully capable of effecting a hypersensitive response with further damage to the ocular tissue. Alertness to environmental contacts is of paramount importance as the etiologic agent is often to be found there. The causative factors are usually established by skin testing, patch testing and food and environmental diaries. 11 references. 1 table.—*Author's abstract.*

8. Anterior Chamber and Pupil

Eyelashes in the Anterior Chamber of the Eye (*Pestañas en camara anterior*). *Bruno Tosi.* Arch. oftal. Buenos Aires 24: 130-35, June-July 1949.

Eyelashes may enter the anterior chamber through a perforating wound or during operative intervention. Their number may vary. They are usually single and adherent to the iris, to the cornea in iridocorneal sinus, or enclosed in exudate or cysts. The eyelash usually becomes encapsulated in a thin transparent capsule and is frequently flecked with pigment. As time goes on the color may disappear and the eyelash may be absorbed. Eyelashes are well tolerated in the anterior chamber and may remain there for years. In some instances they have been known to have been present from twenty to thirty-three years. It is emphasized that eyelashes rarely carry any pathogenic organisms. Nevertheless cases of chronic inflammation, recurrent irritation, lachrymation, photophobia, corneal opacity and pain and sensitivity due to friction of the cornea or iris have been reported. Such cases clear up only after extraction of the eyelash. Even a few cases of sympathetic ophthalmia have been attributed to this cause. Late complications include pearly cysts of the iris. Studies of enucleated eyes containing eyelashes have shown that the latter cause a foreign body giant-cell reaction, a chronic inflammation with granulation tissue and giant-cells.

Intervention is justified only in cases presenting annoying symptoms; otherwise, expectant treatment is indicated. Three cases are described in detail. In the first there was no history of trauma, in the second a wire had caused injury, and in the third case the eyelash had evidently gained access to the anterior chamber during an operation for cataract.

Contribution to the Study of Heterochromia Iridis of Fuchs and Its Pupillary Disturbances: Sympathetic Pathogenesis (*Contribution à l'étude de l'hétérochrome de Fuchs et de ses troubles pupillaires: pathogénie sympathique*). *Jules Francois, Ghent, Belgium.* Ann d'ocul. 182: 583-96, Aug. 1949.

In a study of 9 cases of heterochromia iridis of Fuchs, the pupillary reactions to various substances were determined. Some of these substances tested act on the sympathetic nervous system and others on the parasympathetic nervous system. On the basis of these tests, it is concluded that in heterochromia iridis of Fuchs, there is as a rule, although not always, a paresis of the sympathetic nervous system. 8 references. 1 figure. 1 table.

Anisocoria. Attempted Induction by Unilateral Illumination. *Ira S. Jones, New York, N. Y.* Arch. Ophth. 42: 249-53, Sept. 1949.

Illumination of the central portion of the retina of one eye, under varying conditions of duration and intensity, failed to produce anisocoria.

These results contradict the widely-held view that such illumination results in a smaller pupil on the stimulated side. Infrared cinematography of both pupils simultaneously was used. 6 references. 3 tables.—*Author's abstract.*

9. Uveal Tract and Sympathetic Ophthalmitis

A Survey of Sixteen Cases of Malignant Melanoma of the Uveal Tract. *S. Ramsay and J. Conroy, Montreal, Canada.* Canad. M. A. J. 61: 47-50, July 1949.

Of the 16 cases presented here, 11 were women. The greater proportion of patients was over forty years of age. Two patients had no complaints, but the others first noticed disturbance of vision. Pain and tenderness of the eye occurred later. Four patients had a mass in the orbit or the iris, 7 had a visible mass in the fundus, and the remaining 5 had glaucoma, corneal edema, exudate on the lens or heavy vitreous opacities obscurring the fundus. When a patient with detached retina is kept in bed the tumor may appear as the retina falls backward. Failure of transillumination is a strong indication that tumor is present. All the patients had an eye enucleated. Thirteen are still alive and show no signs of metastasis. The findings of an epithelioid type cell and a low reticulum content indicate a poor prognosis. 2 figures. 5 references.

Late Syphilitic Uveitis Cured by Massive Subconjunctival Injections of Penicillin. (*Uvéite syphilitique tardive guérie par la pénicillin in injection massive sous-conjunctivale*). *A. A. Alvarez, Ciudad Real, Spain.* Ann. d'ocul. 182: 521-24, July 1949.

In the case reported, the symptoms of irido-cyclitis of the right eye developed twenty years after the original syphilitic infection, which had been inadequately treated. Treatment with novarsenobenzol and bismuth failed to improve the eye condition, and the left eye became involved also. Vision failed rapidly, and eight months after onset the patient was practically blind (vision 1/20 in each eye). The patient was given penicillin in a total dosage of 3 million units. The first million units were given intramuscularly (50,000 units every six hours); the Wassermann reaction became negative, but there was no improvement in the eye condition. Penicillin was then given by subconjunctival injection (in a solution containing novocaine 2% and adrenalin); 50,000 units were injected every six hours until 1 million units had been given; vision showed prompt improvement and ultimately became 1/2 in each eye. Another million units were given intramuscularly.

10. Crystalline Lens

Cataract with Dermatologic Affections. Poikilodermia or Rothmund's Syndrome and Sclerodermia or Werner's Syndrome (*Cataracte et affections cutanées du type poikilodermie (syndrome de Rothmund) et du type sclérodermie, syndrome de Werner*). *A. Franceschetti and G. Maeder, Geneva.* Schweiz. med. Wschr. 79: 657-63, July 23, 1949.

Following the observation of two types of skin disease in 4 cases of cataract, a review of the literature revealed 21 cases of cataract associated with Rothmund's syndrome of poikilodermia. The latter appears frequently as a rash during the first year of life, with cataract developing between the second and sixth years. There is usually an associated endocrine disturbance affecting the sex glands in particular. Of the 21 cases reported, 16 were in women.

The Werner syndrome of scleropoikilodermia of the Arndt-Jaffe type usually makes its appearance after puberty and in these cases cataract develops between 20 and 30 years of age. Here, too, an endocrine disturbance usually is present, likewise affecting the sex glands predominantly. Juvenile baldness, dwarfism and speech defects have also been observed. The skin disease is slowly progressive and not infrequently impotence develops in the male. The Werner syndrome is about as common in men as in women. Of the 44 cases reported in the literature, 26 were men and 18 women. 21 references. 10 figures.

11. Retina

Chorioretinal Lesions in Two Sisters With Friedreich's Heredo-ataxia (*Altérations choriorétiniennes chez deux soeurs atteintés d'hérédo-ataxia du type Friedreich*). *W. Stadlin, Geneva, Switzerland.* Ann. d'ocul. 182: 489-508, July 1949.

Two sisters with Friedreich's heredo-ataxia developed chorioretinal lesions at the age of 26 to 27 in one case and at the age of 25 in the other. Both sisters had nystagmus; one showed a diminution of vision and hypoesthesia of the cornea on the right side. The first stage of the retinal lesions, as observed in one of the sisters, was the appearance of small yellow foci in the intermediate zone of the retina. Later both lighter-colored and darker foci developed. In one sister the macula was not involved, but in the other it showed the presence of dark plaques. These ophthalmoscopic findings are interpreted in part as tapeto-retinal degeneration and in part as exudative chorioretinitis. A review of the literature shows other cases of Friedreich's heredo-ataxia with similar ophthalmoscopic findings. It is evident, therefore, that lesions of an inflammatory type may occur in a degenerative disease. 33 references. 5 figures.

The Clinical Significance of Closure of the Retinal Vessels. *W. L. Benedict, Rochester, Minn.* J. M. A. Georgia 38: 423-33, Oct. 1949.

Five hundred cases of closure of the central vessels of the retina encountered at the Mayo Clinic were studied to determine the age of incidence of the closure of the vessels and to correlate these vascular accidents with other vascular complications. In the group studied there were 132 cases of closure of the central artery of the retina or its branches, 361 cases of closure of the central vein or its tributaries, 5 cases of bilateral thrombosis, 1 case of trauma and 1 case of thrombosis in a patient who was being treated by the intravenous injection of sodium morrhuate. As the lesions in the last-mentioned 7 cases evidently were not due to disease of the vascular system they have not been included in consideration of the main group of 493 cases of closure of the central retinal vessels.

Of the 132 cases of closure of the central artery, 10 occurred in patients before the age of 30. Thirty-nine cases, or 29.5% of the total, occurred in the sixth decade; 28, or 21.2%, in the seventh decade; and 24, or 18.1%, after the age of 70. It can be seen that most of the cases of closure of the central artery of the retina occurred in patients within the age span of chronic hypertensive and diffuse arteriolar disease. Thrombosis of the retinal veins occurred in 361 patients. Here again the great majority were in the sixth and seventh decades. One hundred and two persons, or 28.3% of the total number investigated, experienced thrombosis in the sixth decade, while 119, or 33%, had it in the seventh decade, an indication that thrombosis of the retinal vessels is a result of arteriosclerosis and, as a rule, occurs at a later period in life than does embolism of the central arteries. Arterial and venous occlusion in the same eye occurred in only 7 of the 500 patients, and 5 of the 7 were in the sixth and seventh decades of life. Of the 361 patients with retinal venous thrombosis, secondary glaucoma occurred in 41, or 11.4%. There was only 1 case of glaucoma in 132 cases of closure of the central artery. Severe systemic arteriosclerosis and hypertensive cardiovascular disease were found in only 13.4 and 12.1%, respectively.

Contrary to the statement frequently made that vascular occlusion in the retina usually occurs early in the course of hypertensive disease and in arteriosclerosis, the cases reviewed in this study showed that generalized arteriosclerosis and hypertensive disease were more likely to cause retinal thrombosis in the sixth and seventh decades. Of the 132 cases of arterial occlusion, systemic arteriosclerosis was found in 9, or 6.8%; hypertension in 18, or 13.6%; coronary disease in 8, or 6.1%; and cerebral accidents in 17, or 12.9%. Of the 361 cases of thrombosis of the central retinal veins, generalized arteriosclerosis was found in 9, or 2.5%; hypertension in 53, or 14.7%; coronary disease in 16, or 4.4%; and cerebral accidents in 14, or 3.9%. Arteriosclerosis and hypertension

were more common in cases of occlusion of the central artery of the retina, while coronary involvement and cerebral accidents were more frequently found in cases of thrombosis of the central retinal vein. 16 references. 6 tables.—*Author's abstract.*

(*This is a valuable analysis. One must keep in mind, however, that our understanding of the pathology and mechanism of retinal vessel closure is far from satisfactory.*—J. N. E.)

Results of Lindner's Shortening Operations (*Ueber die Erfolge der Bulbusverkurzungsopertionen nach Lindner*). *F. Meyer, Vienna.* Klin. Mbl. Augenh. 114: 513-23, 1949.

The results of Lindner's shortening operations in a series of 36 cases of retinal detachment are discussed. The success of the operation depends largely upon the condition of the vitreous body. Cases with marked atrophy of the vitreous and band formation have a less favorable prognosis.

Of the present series of 36 cases, 6 were cured, 10 were improved, 9 showed a slight operative result and 11 were unimproved. A follow-up examination some years later showed that of 24 cases followed up, 8 were cured, in 7 cases the condition had remained stationary with residual detachment and no improvement had occurred in 21 cases. Of 8 patients followed up who were practically blind in one eye, 4 showed complete attachment of the retina following a first or second shortening operation. The condition had remained stationary with residual detachment in 3 cases following 2 to 3 operations. Four patients had become totally blind in spite of several operations. This operation is indicated more frequently now than in the past owing to improved methods of demonstrating the condition of the vitreous.

In the presence of a very dense vitreous or band fixation of the retina it is better, even in cases with defect, to proceed immediately to a shortening operation and close the defect later. By proceeding in this manner, repeated futile operations which have an unfavorable effect on the vitreous may be avoided. The shortening operations of Lindner will, therefore, yield a good result, or at least improvement, in otherwise hopeless cases.

Nearly 50% of all cases of retinal detachment can be cured by operation, and if the prognostically unfavorable cases are excluded, this proportion can be raised to as much as 84%. In a certain percentage of cases of retinal detachment in which, due to conditions, a reattachment is hindered or difficult, the usual surgical methods fail. Mechanical factors may render reattachment of the retina impossible. Lindner's shortening operation involves removal of a scleral strip, 2 to 6 mm. wide (in aphacics 2 to 2½ mm.) beginning from 8 to 12 mm. from the limbus. The shortening may be done in the upper or temporal portion

of the eyeball, but one operation usually does not suffice. The same intervention is then repeated in the opposite sector or even several times until the desired effect has been attained. A tabular analysis of cases is included.

(*With more extensive material, a better evaluation could be made of the justification for this radical and perhaps unusually risky procedure.* —J. N. E.)

Retinal Angiospasm. The Fundus in Different Stages of an Attack in the Left Eye. *Ursula Rexed, Stockholm, Sweden.* Am. J. Ophth. 32: 1269-71, Sept. 1949.

In this presentation, 8 photographs of the fundus during an attack of retinal angiospasm are shown. A woman 40 years of age, showing signs of vasolability, had repeated attacks of retinal angiospasm in the left eye. The attacks lasted for about three minutes and came on at ten minute intervals during twelve hours. The pulse rate and blood pressure showed an increase during the attacks; the visual acuity of the affected eye diminished to perception of hand movements, and the perimetric field rapidly diminished from without inward. Between attacks, the field was normal and showed no scotomas. A thorough general examination showed a sinus tachycardia and a lability of the arterial tonus. An electroretinogram taken between the attacks gave normal findings. The attack of angiospasm began with a contraction of the arteries and veins. This contraction increased until the arteries of the optic disk were seen to be empty. This was a phenomenon that occurred toward the end of each attack as the spasm reached its maximum, and it was followed by a sudden filling up of the vessels. After the spasm had given way, an engorgement of the veins was seen. 8 figures.—*Author's abstract.*

(*This is one of the few convincing reports on vasospasms. Many writers have been satisfied that the narrowing of the blood column always indicates vasospasm. This is, of course, not so. Perhaps so-called capillary sphincters described by Chambers and others are the structures responsible for the spastic state.*—J. N. E.)

12. Neuro-Ophthalmology, Optic Nerve, Visual Pathways, Centers and Visual Fields

Cranial Trauma and "Immediate" Choked Disk (*Traumatismo de craneo y edema de papila "immediato"*). *Raul F. Matera, Horacio Casté and Aldo Martino.* Arch. oftal. Buenos Aires 24: 140-50, June-July 1949.

In 350 cases of cranial injury seen during the past ten years, there were 16, or 4.5%, with "immediate" choked disk. This is a higher incidence than that usually estimated. By the term "immediate" is meant a few hours or days following the injury, this symptom being the sole manifestation of diffuse intracranial hypertension with no hematoma. The progress of edema from the initial stage of venous dilatation to final complete choked disk is described. It is necessary to differentiate between

choked disk due to post-traumatic intracranial hypertension and that due to hemorrhage of the subarachnoid sheath of the optic nerve. The writers agree with other investigators on the relation of immediate choked disk to increased tension in the central retinal artery. Post-traumatic choked disk is related to histopathologic and physiochemical changes in the nerve tissue. An analytic study of the 16 cases mentioned indicates that the compensation syndrome, i.e., the state of the pulse, respiration, arterial pressure and consciousness, is of fundamental importance in determining indications for surgical intervention.

In 6 of the present cases there had been a fracture of the skull, in 4 of which the fracture was located at the base of the skull. Spinal puncture revealed increased pressure of the cerebrospinal fluid, and in 3 cases ventriculography showed a slight diminution in the size of the ventricular system. In 2 cases in which encephalograms were taken, these showed normal conditions. In 4 cases in which encephalograms were taken from fifteen days to two months after the injury, a diffuse cerebral dysrhythmia was observed in 3 of the cases and in the fourth a right parietal dysrhythmia suggested hematoma. However the further course in this last mentioned case did not confirm this assumption. 23 references.

(*The incidence of early papilledema after cranial trauma has even been estimated to reach* 20 *to* 30%.—THEODORE E. WALSH, M.D.)

The Differential Diagnosis of Important Lesions of the Optic Disc. *A. J. Elliot.* The Ontario Med. Rev. 16: 75-81, Aug. 1949.

There are a number of congenital anomalies of the disk which may be confused with optic atrophy, cupping of the optic disk, papilledema and optic neuritis. A coloboma may involve the nerve only, or may extend into the choroid inferiorly. A posterior staphyloma appears as a large white area, which contains the normal disk. Congenital crescents of the disk are frequently on the temporal side. Hyaline bodies at the disk may be confused with papilledema or optic neuritis. They appear near the disk margins as rounded, shiny, translucent bodies. The visual field may show enlargement of the blind spot or an arcuate scotoma breaking to the periphery. A strand of fibrous tissue running along the blood vessels as they emerge at the disk may suggest papilledema. Pseudopapilledema occurs more frequently in hyperopic patients. The blind spots are normal, the retinal vessels are not engorged, and the visual acuity is good. In pseudoneuritis there is a deficient atrophy of Bergemeister's papilla and visual acuity is often defective. Medullated nerve fibers may cause a visual field defect including an enlargment of the blind spot.

Papilledema means a passive, non-inflammatory edema of the disk. The earliest signs are congestion of the retinal veins and loss of venous pulsation at the disk. Blurring of the disk margins and of the optic cup are not reliable signs. Pinpoint hemorrhages near the disk may help to differentiate the condition. In the later stages optic atrophy with the

formation of glial tissue occurs. Visual acuity may remain normal for a long time although there may be transient periods of blurred vision. The field changes are an enlargement of the blind spot, blurring of the central field for blue, and later peripheral contraction of the field. Papilledema is present in over 80% of brain tumor cases, about 25% of severe head injuries and in a minority of cases of subdural hematoma. The picture in the later stages of thrombosis of the central retinal vein is very similar to that of papilledema.

Optic neuritis results in loss of central vision, usually one eye, commonly in young adults. There may be pain on movement of the globe, tenderness over the superior rectus, and a poorly sustained pupillary reaction to light. The majority of cases are due to disseminated sclerosis. The distinction between primary and secondary optic atrophy is ophthalmoscopic. In the former the disk margins are sharp; in the latter the physiologic cup is obliterated, the margins are blurred and the vessels contracted. Primary optic atrophy occurs from tabes, disseminated sclerosis, tumors at the chiasma, Leber's disease and toxins. Secondary atrophy occurs after papilledema and optic neuritis. Pituitary tumors cause atrophy, not edema, at the disk. The first complaint is frequently loss of vision. The typical field change is a bi-temporal hemianopia. When the disk is normal, function may return after the tumor is removed. Meningioma of the greater wing of the sphenoid occurs in women 40 to 60 years of age, produces optic atrophy on the same side, swelling in the temporal region and exophthalmos. Craniopharyngioma occurs in children. Roentgenograms may show calcium in the walls of a cyst above the sella turcica. 2 references.

Allergic Retrobulbar Neuritis. *Thomas D. Allen and Otto F. Seidelmann, Chicago, Ill.* Illinois M. J. 96: 106-9, Aug. 1949.

Allergy and ocular diseases have been increasingly associated during recent years. A case history of retrobulbar neuritis of allergic origin is discussed. The patient is a 63-year-old woman who was first seen in 1939 when she had slight fogginess of vision, worse in the left eye, and difficulty in keeping her eyes focused on sewing. She gave a history of arthritis a year before which was cured by extraction of a diseased tooth. At that time, she had normal vision but her pupils reacted sluggishly to light and accomodation and she had floating vitreous opacities in each eye. The fundi were normal but glasses were prescribed for a compound hyperopic astigmatism with presbyopia. A year later, she complained of a pulling and twitching sensation in the lower lid and two years later of recurrent smarting and aching in her eyes. More eye symptoms developed later, followed by hives from strawberries and tomatoes. Complete physical examination and allergy tests then showed her to be normal except for positive allergy reaction to strawberries and tomatoes. Five years later, she developed severe pain in the left eyeball and blurred vision. Her vision was O.D. 20/50 and O.S. 20/70, correctable to 20/30 in each eye. She afterwards received displacement treatment of the pos-

terior nares and a month later complained of severe headache and stabbing pain in the left eye. Allergy tests then were positive for bananas, camel and cat's hair. She improved under pyribenzamine therapy but became worse after it was stopped and showed a plus three reaction to staphylococcus. Her eyes were about the same as before but repeat central fields showed relative paracentral scotoma for red and green in the right eye and an absolute paracentral scotoma for red and a relative scotoma for green in the left eye. Pyribenzamine therapy was resumed and the importance of diet was emphasized. She was greatly improved two weeks later, had no pain in the left eye or head, and only very small scotoma for red in repeated central fields. This case was considered to be one of retrobulbar neuritis in which allergy was a definite etiologic factor. 5 references. 3 figures.

Value of Malaria Therapy in Syphilitic Atrophy of the Optic Nerve (*La valeur de la malaria-thérapie dans l'atrophie syphilitique des nerfs optiques*). *Nicolas Blatt.* Ann. d'ocul. 182: 513-20, July 1949.

In 387 cases of tabetic atrophy of the optic nerve, 119 were given malaria therapy by the usual method; 197 were treated by other methods, including mercury, bismuth, iodides, salvarsan, vitamin B, typhoid vaccine, tuberculin and parenteral protein; 71 received no treatment. The effect of malaria therapy on vision was unfavorable; of the 119 patients treated with malaria, 56% had total loss of vision within six months, while of the patients treated by other methods only 20% had total loss of vision in the first six months, and of those not treated, 26% had total loss of vision in this period. In some cases, rapid loss of vision during malarial therapy was noted. In the cases treated by other methods, specific therapy, especially salvarsan, had a less favorable effect than vitamin therapy combined with adequate diet and rest. These results in tabetic optic nerve atrophy are to be clearly distinguished from the favorable results of malaria therapy in general paresis, uncomplicated by tabes, in which the therapy has a favorable effect on the optic neuritis and may prevent a postneuritic atrophy of the optic nerve. In tabetic optic atrophy the lesion is due to the action of endotoxins of the spirochetes rather than to the presence of the spirochetes themselves. Since malaria therapy destroys the spirochetes, it liberates a considerable quantity of the endotoxins, which added to those elaborated by the malarial parasites, have an unfavorable effect on the optic nerve. 1 table.

(*Most reports indicate that malaria therapy is ineffective in tabetic atrophy of the optic nerve. This report is further confirmation.*—THEODORE E. WALSH, M.D.)

Neurosurgical Treatment of Tumors of the Optic Nerve. (*Le traitement neurochirurgical des tumeurs du nerf optique*). *J. D. Buffat, Lausanne, Switzerland.* Rev. méd. Suisse rom. 56: 511-22, Aug. 25, 1949.

As tumors of the optic nerve cause symptoms that relate to the eye—diminution of vision and limitation of ocular movements—the patient is first seen by the ophthalmologist. In most cases such tumors have been

treated by enucleation of the eye with or without exenteration of the orbit. But as these tumors may extend into the intracranial structures, the author feels that the first operative approach should be intracranial (i. e. neurosurgery) by a frontotemporal exposure. If the tumor cannot be removed entirely by this route because, for example, it has extended into the posterior pole of the eyeball, a second-stage operation for enucleation of the eye with eventual exenteration of the orbit is indicated. In cases of meningioma of the optic nerve, because of the slow growth of these tumors, an interval of two or three weeks may be allowed to elapse between the first and second-stage operation. In glioma of the optic nerve, however, the second-stage operation should be done at the same time as the first-stage or immediately after the first-stage.

Two illustrative cases are reported. The first patient was a woman 31 years of age who had had the left eye enucleated for a meningioma of the optic nerve; a second operation for removal of local recurrence within the orbit was necessary a year later. For twenty years there were no definite symptoms, but twenty-five years later an intracranial operation was done, and the tumor was found to have invaded the base of the brain extensively. Complete removal of the tumor was impossible. The patient died within twenty-four hours after operation. The second patient was a girl 5 years of age with glioma of the optic nerve. An intracranial operation was first done, with partial excision of the tumor; a second-stage operation, enucleation of the eye and exenteration of the orbit, was done several weeks later; it would probably have been better to have done the second-stage operation more promptly, because of the danger of intra-orbital extension of the tumor.

Digitoxin Intoxication Resulting in Retrobulbar Optic Neuritis. *Peter Sykowski, Schenectady, N. Y.* Am. J. Ophth. 32: 572-74, April 1949.

Digitalis intoxication, as an etiologic factor in the production of retrobulbar optic neuritis, has been reported by Wagener et al. Theirs was the first case to be published in ophthalmic literature. Another instance of retrobulbar optic neuritis, resulting, however, from digitoxin therapy, is presented. An optometrist referred a 47-year-old man in no acute distress but with the complaint of blurriness of vision in both eyes. Four weeks previously, severe right-sided and left-sided cardiac decompensation had occurred. For this, therapy with digitoxin (0.2 mg.) was initiated, the dosage being one tablet three times daily for one week, and one tablet twice daily thereafter. During the first two weeks of therapy there were no complaints. With the onset of the third week, fogginess of vision and inability to read developed suddenly, the diminished visual acuity being pronounced during the day, but improving slightly with the approach of dusk.

At the time of the ocular examination, a total of 5.4 mg. of digitoxin had been used. Uncorrected visual acuity in the right eye was 20/200, and 20/200-1 in the left eye. Corrected vision was: R.E., 20/100-2; L.E., 20/100-1. Externally, in both eyes there was 4.5 mm. mydriasis

with very sluggish reaction to light and with the contraction not being maintained in continued bright light. Biomicroscopic and ophthalmoscopic examinations were essentially normal. Under reduced illumination the central visual fields at a distance of one meter revealed the following: 1) slight enlargement of the cecal areas; 2) pericentral scotomas with a 1 mm. white test object, 5° in the right eye and 10° in the left eye; 3) denser pericentral scotomas within each scotoma with a 2 mm. white test object, 3° in the right eye and 5° in the left eye.

Thiamine chloride (20 mg., 3 times daily) was prescribed immediately. The seriousness of the patient's cardiac condition did not warrant discontinuance of digitoxin therapy. After ten more days of the same dosage, digitoxin was reduced to one tablet a day. On the fourth day of reduced digitoxin therapy the vision was seen to improve subjectively. After four weeks of reduced therapy, uncorrected vision in the right eye was 20/50-1; in the left eye the vision was 20/70. The pupils o fboth eyes were normal. Further reduction in the pericentral scotomas occurred —with a 1 mm. test object: R.E., 3°, L.E., 4°; with a 2 mm. white test object: R.E., 0.5°, L.E., 1°. During the ninth week, when digitoxin was not used for a three-day period, there was complete absence of "smokiness". Corrected vision was 20/25 in both eyes, and the pericentral scotomas were the same in size. This case was unusual because the only presenting symptom of digitoxin intoxication was that of blurriness of vision. 5 references.—*Author's abstract.*

(*Small central scotomas seem to develop more often than heretofore assumed when a fair amount of digitalis is administered. Patients under digitalization with ocular symptoms should have the central fields examined.*—THEODORE E. WALSH, M.D.)

Visual Scotomata with Intracranial Lesions Affecting the Optic Nerve. *Alan J. Mooney and Adams A. McConnell, Dublin, Ireland.* J. Neurol., Neurosurg. & Psychiat. 12: 205-18, Aug. 1949.

In this paper, current theories on the causation of central scotomata associated with space-occupying intracranial lesions are reviewed. It is pointed out that central scotomata occur most frequently when the lesion is placed close to the optic foramen and when pressure on the optic nerve is directed either from above or below. It is suggested that tumors or nodules of tumor in this situation must affect the ophthalmic artery and the branches of this artery which pass directly to the optic nerve. The presence or absence of scotomata would therefore depend on whether or not a particular vessel or group of vessels were involved and not on any special vulnerability of the macular fibers of the optic nerve to direct pressure. Anatomic reasons for this suggestion are presented and relevant case histories are cited. 26 references. 34 figures.—*Author's abstract.*

13. Eyeball, Exophthalmos and Enophthalmos

Bilateral Enucleation for Choroid Metastases from Carcinoma of the Breast (*Doppelseitige Enukleation wegen Aderhautmetastasen nach Mammakarzinom*). *Hans Waubke.* Klin. Mbl. Augenh. 114: 530-34, 1949.

A nodule in the left breast of a woman of 39 years was diagnosed as carcinoma. The breast and a tumor in the left axilla were removed and a course of postoperative irradiation was administered. About three months later, a nodule appeared in the scar, but disappeared after a second series of roentgen irradiation. Except for a persistent cough, she remained in good health for about nine months. At this time she had an ophthalmologic examination, as she complained of vague visual disturbances in her right eye. A yellowish-gray discoloration of the choroid with vaguely defined margins was noted in the upper macular region. Vision was normal. The patient was afraid that the cough and visual disturbance were caused by the carcinoma. Examination a few weeks later showed some increase in the size of the discolored area, and a roentgen examination of the chest revealed diffuse carcinosis of the lungs. Since the patient had been very uncomfortable during previous irradiations, and as she realized that she had only a short time to live, she preferred enucleation. This was performed under evipan anesthesia with good results. However, her cough became worse and she suffered from headache over the right parietal bone as well as visual disturbances in the remaining eye. About four months after the first enucleation, the second eye was removed and three months later the patient died.

It was noted that the growth of the second choroid tumor was more rapid than the first. Histologic examination of the operative specimens revealed metastases from the mammary cancer. It has been estimated that 65% of choroid metastases can be traced to primary carcinoma of the breast. That such metastases are rare may be gleaned from the fact that the author has seen only one case in 25 years. The incidence of choroid metastases in mammary carcinoma has been reported as 0.5%. Such metastases may develop from four months to fifteen years after the primary tumor has been removed, and are nearly always an indication of generalization of the malignant disease. Patients may survive from a few weeks to twelve months. The average survival is from seven to nine months. One-third of all cases have been bilateral, but prognosis in bilateral choroid metastases is no worse than for unilateral cases. Since death does not usually occur before glaucoma develops, treatment is imperative. In opposition to Luzsa, Sgross and others who postpone enucleation until glaucoma has developed, the writer recommends immediate enucleation. In some recent cases good vision has been retained until the end by roentgenotherapy. The by-effects of irradiation are tolerable and enucleation is superfluous. In the present case, if proper roentgen apparatus had been available, roentgenotherapy might have spared

vision for the short survival period and the left eye could have been left *in situ* until the development of secondary glaucoma. 19 references.

Thyrotropic Exophthalmos from the Viewpoint of the Ophthalmologist. *Francis H. Adler, M. D., Harold G. Scheie, M. D. and Richard Dennis, M. D., Philadelphia, Pa.* J. Michigan M. Soc. 48: 852-57, July 1949.

Two types of Grave's disease are recognized. The pathogenesis of each is different, as well as the treatment. The thyrotoxic type of Grave's disease is recognized by the following signs: 1) exophthalmos, which is more apparent than real, due to widening of the palpebral fissures as a result of spasm of the smooth muscle of the lids; 2) thyrotoxicosis is always present and when this is relieved, the exophthalmos generally disappears or is considerably improved. The ocular findings in thyrotropic exophthalmos are as follows: 1) early edema of the lids and bulbar conjunctiva which is characteristic; 2) early and progressive exophthalmos which is real and due to accumulation of fluid in the orbital tissues; 3) ocular muscle palsies, involving movements of the globe in one or more directions; 4) thyrotoxic symptoms are generally absent, but may be present to varying degrees. Other clinical features which help differentiate these 2 types are as follows: 1) in the thyrotoxic type, the basal metabolic rate is always elevated; 2) in the thyrotropic type, it may be elevated, but is usually normal or subnormal; 3) in the thyrotoxic type, cholesterol is usually low or normal; 4) in the thyrotropic type it is not characteristic and may be low, high or normal; 5) the glucose tolerance curve in the thyrotoxic type is usually elevated, indicating a decreased tolerance to blood sugar, whereas in the thyrotropic type the curve is not characteristic. The following signs of thyrotoxicosis are usually prominent in the thyrotoxic type; 1) fast pulse; 2) loss of weight; 3) tremor; 4) perspiration; 5) widening of the pulse pressure; 6) irritability; 7) voracious appetite; 8)sensitivity to heat. All of these may be thought of as marks of increased thyroid activity. In the thyrotropic cases, these usually are not prominent because there may or may not be an excess of thyroid activity. Certain laboratory procedures, such as assay for the thyrotropic hormone in the blood or urine, may be carried out in especially equipped laboratories, or the urine may be assayed for gonadotropin by the biologic method.

The treatment of thyrotoxic type of Grave's disease is to reduce the activity of the thyroid either by medical or surgical means. In the thyrotropic type, depression of the thyroid results in a marked increase in the exophthalmos with possible loss of the eyes. These cases, therefore, should never by subjected to thyroidectomy. The following treatment has been found helpful: 1) administration of thyroid extract and iodine to inhibit the thyrotropic hormone; 2) avoid anything which depresses the thyroid further; 3) x-ray of the pituitary gland. One or two courses of 1000 r each are generally given. This is believed to be more effective when given in the acute stage before there is fibrosis in the eye muscles; 4) esterin and related compounds may have a beneficial effect similar to that of

iodine by inhibiting the gonadotropic and the thyrotropic output from the anterior pituitary lobe; 5) thyroid extract may give dramatic improvement in patients even though they show some evidence of hypothyroidism. Generally, 2 gr. of the dessicated thyroid are given daily, but if thyroidectomy has been done, larger amounts may be necessary, even 5 to 7.5 gr. daily. Decompression operations may be indicated if the exophthalmos becomes progressive, as suggested by Naffziger and others. The procedure is palliative only, and in our hands the Naffziger operation has been the most satisfactory type.—*Author's abstract.*

14. Glaucoma and Hypotony

The Surgery of Primary Glaucoma. *Conrad Berens, M.D., L. Benjamin Sheppard, M.D., Arthur B. Duel, Jr., M.D. and Louis J. Girard, M.D., New York, N. Y.* South. M. J. 42: 731-38, Sept., 1949.

From the observations of the work of others, from the authors' own experience and from other statistics, included in this paper, it is evident that successful results have been obtained by ophthalmic surgeons in all types of glaucoma, employing widely-varying technics with and without the guidance of newer classifications.

In selecting the operative technic for chronic simple glaucoma, the width of the angle, the presence or absence of peripheral anterior synechiae, the presence of and possibility of eliminating chronic infection, the degree of atrophy of the iris and conjunctiva, and especially the lower limits of base pressure are important considerations.

The authors believe it is desirable to endeavor to differentiate the wide from the narrow angle types of glaucoma but that in many cases the diagnosis is exceedingly difficult. In acute primary glaucoma the operation of choice is usually a basal iridectomy, especially when the operation may be performed early and the angle is narrow. However, this operation alone, even when combined with early and repeated massage, may not control tension. When the anterior chamber is deep, there is a history of previous attacks, the tension is not controlled medically or peripheral anterior synechiae are seen or their presence suspected, iridocorneosclerectomy is the operation of choice.

It is evident from the authors' experience and from analysis of statistical data that a broad basal iridectomy will control tension in chronic primary glaucoma if the angle is narrow, the iris is not atrophic, base pressure is low and there are few peripheral anterior synechiae. It is suggested from a study of statistics on 13, 502 operations that, in skilled hands, this operation may be successful when some of these conditions probably do not exist. However, the authors prefer iridocorneosclerectomy for these cases. In the light of our present knowledge, if the angle is wide, an external or internal filtering operation should be performed. Cyclodialysis with the introduction of air is the operation of choice if the base pressure is low and if the fields are markedly contracted. If the base pressure is

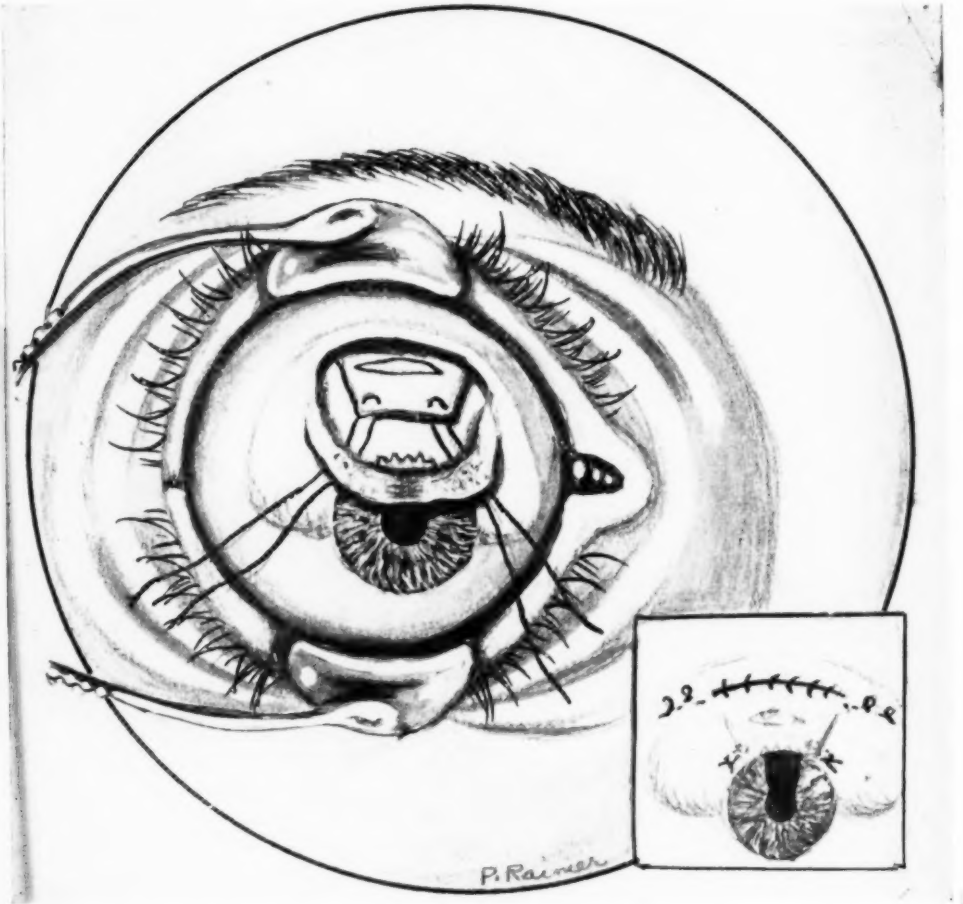

FIG. 1
Iridocorneo-sclerectomy. When there is no Tenon's capsule anterior to the insertion of the superior rectus, a flap of Tenon's capsule is partially freed and the flap is drawn downward by two double-armed (7—0) black silk sutures attaching the flap to the episcleral tissue close to the limbus on each side of the wound.

high (over 40 mm. Hg. Schiotz), iridocorneosclerectomy is the operation of choice, and if the base pressure is over 50 mm. Hg., iridocorneosclerectomy with incarceration of the iris pillars in the wound is recommended. If a cataract is developing rapidly or likely to progress suddenly, a complete iridectomy is performed.

In the Negro race, cycloelectrolysis, a new procedure for diminishing the secretion of the aqueous, is suggested as the primary procedure because of the unsuccessful results obtained from filtering operations, and if the tension is high after operation, it is followed by aspiration or electroparacentesis. Iridencleisis is feared because of the danger of sympathetic ophthalmitis and is employed usually as a secondary rather than a primary

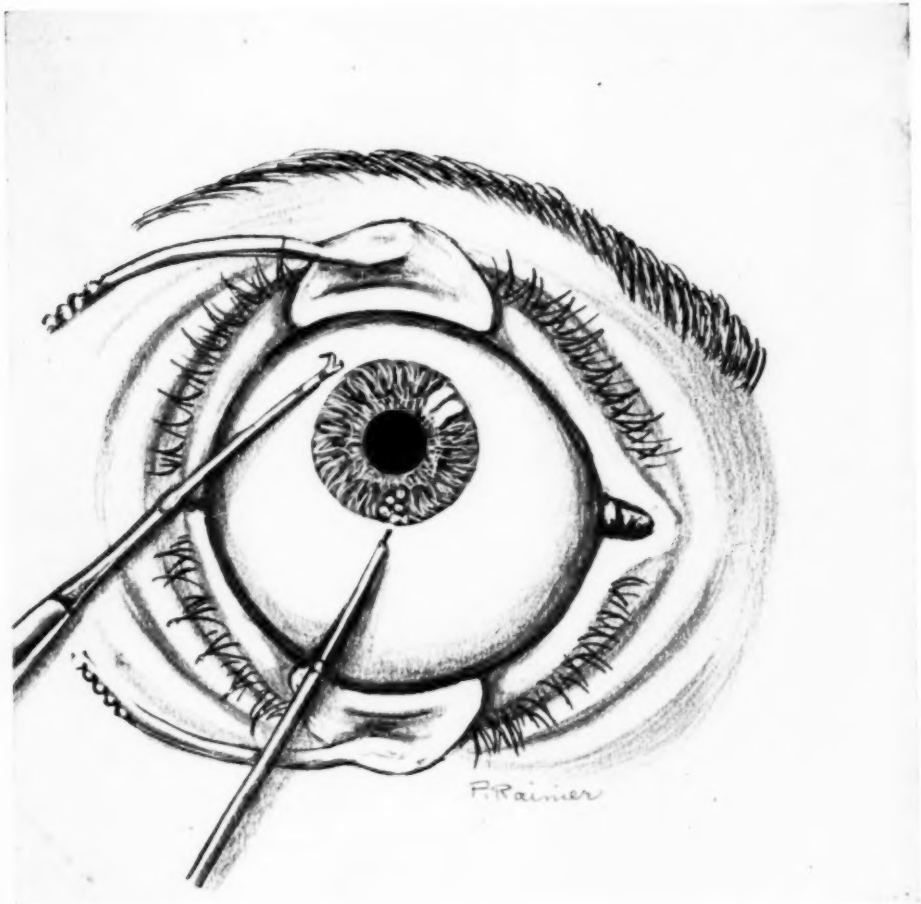

FIG. 2
Electroparacentesis. A 2 mm. straight, conical electrolysis needle, is directed into the angle of the anterior chamber through the conjunctiva and sclera. The needle enters obliquely from a point 1 mm. from the limbus and is held in position using 3 ma. of galvanic current until hydrogen bubbles appear in the aqueous.

Defects in the Visual Fields Resulting from Increased Intracranial Pressure. *C. Wilbur Rucker, Rochester, Minn.* New York State J. Med. 49: 2417-21, Oct. 15 1949.

Increased intracranial pressure, through papilledema or through dilatation of the third ventricle, may give rise to defects in the field of vision. Such defects may be misleading unless their nature and signficance are recognized. Papilledema and its consequent secondary optic atrophy cause enlargement of the physiologic blind spot and contraction of the field, especially nasally. Dilatation of the third ventricle may cause chiasmal or prechiasmal types of defects, that is, bitemporal hemianopsia or defects limited to the field of one eye. 2 references. 10 figures.—*Author's abstract.*

procedure. It is contraindicated if the iris is markedly atrophic or if peripheral anterior synechiae are extensive. 23 references. 2 figures. 3 tables.—*Author's abstract.*

The Non-surgical Treatment of Glaucoma with Report of Cases. *Louis Weiss, Newark, N. J.* Eye, Ear, Nose & Throat Monthly 28: 225-26, 239, May 1949.

This is a report of 8 cases of acute glaucoma relieved without surgical intervention. The office treatment consisted of the instillation of a 2% solution of pilocarpine hydrochloride in the affected eye and the subcutaneous injection of 2 cc. of normal saline solution daily. In some cases a gauze adhesive dressing was first applied over the affected eye for two or three days and dark glasses were prescribed for all. The diet was a moderate amount of the ground foods (fruits, vegetables and cereals) cooked and served warm three times daily, and warm watery liquids, plain or flavored, with and between meals. Cold drinks of any kind were forbidden. Rest was insisted upon, strenuous activities were not allowed, draughts had to be avoided and proper ventilation was advised in the home. These case reports illustrate the efficacy of medical treatment. Glaucoma is usually caused by abnormal conditions outside the eyeball, namely, head colds, sinusitis or a focus of infection, making it more frequently a secondary and not a primary disease. Regardless of one's specialty, the therapeutics in glaucoma or any other disease, to be most effective, must also be general.—*Author's abstract.*

(*Any comment would be unjustified since I have never had the courage to wait and trust pilocarpine and salt solution injections. I doubt if the treatment outlined above is worthwhile.*—B. F. PAYNE.)

The Nature, Recognition and Treatment of Glaucoma. *Arthur D'Ombrain, Sydney, Australia.* M. J. Australia 2: 196-200, Aug. 6, 1949.

The main substance of this paper consists in a presentation of views upon the nature of primary simple noninflammatory glaucoma, these views being based upon eight years' investigation into a special type of chronic glaucoma due to concussional trauma and termed "Concussion Glaucoma", a paper on which was published in the August, 1949 issue of the British Journal of Ophthalmology. From a series of some 40 cases of chronic glaucoma caused, in one eye, by the shock of a concussional trauma, the inference is drawn that if so simple a lesion as concussional trauma can initiate a chronic glaucomatous process, it may be that simple chronic glaucoma may not be so complex a process as has been thought. The hypothesis is, in brief, that simple noninflammatory glaucoma has, as its dominant etiologic factor, an impairment in the drainage system of the trabecular meshwork situation in the posterior part of the cornea.

Due consideration is given to the arteriovenous factor in glaucoma, but this is not considered to be more than a subsidiary factor in simple glaucoma, important though it obviously is in acute congestive glaucoma. It is contended that, as simple glaucoma, looked at broadly, is recognized as

noninflammatory and noncongestive, it is illogical to postulate vascular factors, whether of nervous or other origin, as primary factors. Eight predisposing causes and four contributing causes of simple glaucoma are listed and the nature of the impairment to the exit mechanism in the trabecular meshwork is envisaged as either: 1) fibrotic; 2) proliferative (formation of a cuticular product); 3) degenerative.

Points in the treatment of glaucoma are: 1) that the value of miotics is in inverse proportion to the degree of obstruction present in the corneal trabecular meshwork; 2) that the frequency of instillation of miotics must not be decided arbitrarily but by finding out in what strength and with what frequency a miotic must be used in order to keep the intra-ocular pressure within normal limits.

The terminal section of this paper departs from the mechanistic argument of the preceding sections and puts forward, in the interest of research and in a spirit of adventure, the possibility of a glaucomatous type of personality. This is supported by reflections upon the nature of normal and abnormal pupillary reactions. Finally, a plea is made for the investigation of all glaucoma patients by a team of workers, including the family doctor, the psychiatrist and the consulting physician.—*Author's abstract.*

Present Status of Surgical Treatment of Simple Chronic Glaucoma (*A cirugia atual do glaucoma cronico simples*). *Luis A. Osorio and Mario Araujo Azambuja.* Arch. oftal. de Buenos Aires 24: 103-15, June-July, 1949.

In the surgical treatment of chronic glaucoma, it is most important to spare the ciliary body as much as possible so as to avoid postoperative edema of the ciliary processes and all its consequences in cases of noncongestive glaucoma. In the congestive types, the exacerbating effect of the operation is much more pronounced. The only operation that offers security in this respect is that of Lagrange, namely iridosclerectomy. This is the technic that is recommended, therefore, for all cases of simple chronic glaucoma, and in particular for cases with an ocular tension between 40 and 60 mm. Hg. Surgeons intending to employ this technic must make a thorough study of the physiology and anatomy of the region. In order to obtain good results, the operation must be performed as early as possible. Reviewing 50 cases from one to seven years after operation, the results were found satisfactory in all. In 13 of these cases a Lagrange iridosclerectomy with total iridectomy was performed, in 21 cases, a Lagrange iridosclerectomy with peripheral iridectomy, in 11 cases, an Elliott sclerocorneal trephination, and in 5 cases, Heine's cyclodialysis.

Cilo-anolysis and Cilo-cyclo-anolysis. A New Glaucoma Operation. Intentional Obliteration of the Arteria Ciliars Posterior Longa and Formation of a Passage from the Base of the Iris to the Ciliary Body by Anode Electrolysis (*Cilo-Anolyse und Cilo-Cyclo-Anolyse. Eine neue Glau-*

komoperation: gezielte Verödung der Arteria ciliaris posterior longa und Anlegung eines Iris-basis-Ciliarkorper-Kanals durch Anodenelektrolyse). Eugen Schreck. Universitäts-Augenklinik. Heidelberg. Arch. Ophth. Berl. 149: 95-141, 1949.

On the basis of a carefully evolved conception of the mechanism responsible for intravascular and extravascular regulation of intra-ocular pressure, the author describes the four chief regulatory mechanisms as the hydrostatic, the pupillociliomotor, the vasomotor and the osmotic, and concludes that the circulation in the uvea is the determining factor. Following a discussion of the postulates for operation and of anatomic conditions, he describes the principles of the surgical technic of cilo-anolysis and cilo-cyclo-anolysis. The instruments are the same as those required for cyclodialysis and a direct current with a potentiometer, cumulator or pantostat. The patient is prepared as for cyclodialysis.

For cilo-anolysis, a conjunctiva-Tenon incision is made 2 mm. above the upper end of the insertion of the medial or lateral rectus muscle. The wound is spread and the sclera behind the upper end of the muscular insertion is exposed. A meridional incision is made in the corium corresponding to the length of the selected electrode, 3.5 to 5.0 mm. above the horizontal meridian of the eyeball, beginning anterior at 8 mm. from the limbus and then proceeding 3 to 4 mm. in a posterior direction to finish in the angle. The cilo electrode is then introduced and fixed. The dosage and adjustment of the current is described in detail. The current is kept at the desired strength for the needed interval, compensating for deviations with resistance, is then disconnected slowly and the electrode is removed. The conjunctiva-Tenon wound is smoothed down and secured with a suture, if indicated. In cases with moderate preoperative increase in pressure, 1% homatropine is instilled; in cases with a higher preoperative pressure no mydriatic is used but 5% targesin or 3% pilocarpine is instilled or used in ointment form. Then boric ointment is applied. The after-treatment for the first five days is planned according to the preoperative pressure and thereafter according to current pressure. Mydrial and homatropine have a favorable effect for the first few days after operation, helping to immobilize the recently electrolytically-altered uvea.

For cilo-cyclo-anolysis, the conjunctiva-Tenon incision is extended for 6 mm. parallel with the limbus and at 8 mm. above, exterior or interior to it. A traction suture is placed on the M. rect. lat. (med.). The wound is spread and the sclera is exposed in front of the upper end of the muscle insertion. The electrode is 2 or 3 mm. wide and 3 or 4 mm. long. A scleral incision is made parallel with the limbus at 5 to 6 mm. from the limbus, its center 1 mm. above the horizontal meridian. The cilo-electrode is introduced with the current turned off, along the inner surface of the sclera to back of the scleral spur. Five milliamperes are then applied for the entire duration of the operation, with gentle advance into the anterior chamber. This is accomplished by gentle swaying of the electrodes, but no downward pressure. The arteria ciliaris longa is obliterated by application of

0.5 mA. for fifteen to twenty seconds. In mild glaucoma the current is then turned off and the electrode removed. In severe glaucoma, the canal is widened by gently swinging the electrodes for three to six seconds up to the limbus parallel and back to the meridian. The canal can be deepened by pressure on the irisciliary body angle, thus forming a double internal fistula by application of 0.5 mA. for five to ten seconds. Mioties and 3% pilocarpine are administered for the first few days after operation and the canal can be spread by traction on the root of the iris. Posterior synechia can be prevented by administration of a short mydriasis on the fifth and seventh days, followed immediately by mioties in order to pull the iris back and forth. The head is elevated and turned toward the normal side, and after eight days the operated area can be massaged carefully through the eyelid.

In 20 cases followed up for sixteen months, a reduction of pressure of 26 to 35 mm. Hg. was obtained in 5 cases, a reduction of 16 to 25 mm. Hg. in 8 cases, of 6 to 15 mm. Hg. in 6 cases and of less than 5 mm. in 1 case. Cilocyclo-anolysis in 24 eyes with the longest follow-up of six months, resulted in a reduction in pressure of 46 to 55 mm. Hg. in 2 cases, of 36 to 45 mm. Hg in 6 cases, of 26 to 35 mm. Hg. in 8 cases, of 16 to 25 mm. Hg. in 5 cases, of 6 to 15 mm. Hg. in 2 cases and of less than 5 mm. Hg. in 1 case.

The advantages of this operation lie in the fact that it is a minor operation, without iridectomy, without destruction of the chamber angle and without formation of anexternalfis tula. It involves no danger of surgical trauma to the visual field or to vision. It permits electrolytic disinfection and coagulation of the operative field so that the danger of infection, hemorrhage and retinal detachment is greatly diminished. The scar is insignificant and the intra-ocular pressure is definitely lowered and stabilized. The operation can be repeated without danger and does not preclude other eventual glaucoma operations or cataract extraction. The initial retrogression of pressure is less marked but the antiglaucomatous end result is better. Great care must be taken not to miss the arteria ciliaris longa since there may be occasional deviations from its normal course. The author believes that this operation signifies a new chapter in the surgical treatment of glaucoma and may well cause a change in theoretic conceptions of the disease. 11 figures. 68 references.

Therapeutic Results in Advanced Chronic Simple Glaucoma with Telescopic Fields. *Sylvan Bloomfield and Leo Kellerman, New York, N. Y.* Am. J. Ophth. 32: 1177-82, Sept. 1949.

The purpose of this study was to evaluate statistically the advisability of surgical intervention to reduce tension in eyes with uncontrolled chronic simple glaucoma sufficiently advanced to produce telescopic fields. For this purpose, the combined records of two large ophthalmologic hospitals were reviewed and a total of 41 unoperated eyes were found with vision of 20/200 or better, in which chronic simple glaucoma was medically uncontrolled, and in which fields were restricted to 10° from fixation at

the widest meridian. Nineteen of these eyes were operated upon subsequently to reduce their tension, and the remaining 22 were permitted to continue without operation, although medication failed to reduce their tension to normal range. At the time these alternate methods of treatment were begun, the operated and unoperated groups were essentially similar in age, visual acuity and range of intra-ocular pressure.

In the operated group as a whole, after a follow-up period of slightly over two years, 84% showed some loss of vision and in 47% acuity was reduced to less than 20/200. Forty-two percent of the surgically treated eyes continued to have tensions above normal range, and of this group 75% showed a reduction of acuity to less than 20/200 in two years. In the group of eyes in which tension was reduced to normal range after operation, 27% suffered a reduction in vision to less than 20/200 after this follow-up period. In comparison, of the eyes which were not operated upon although their tension remained abnormally high, only 36% showed some loss of vision, and in only 14% was acuity reduced to less than 20/200; these were followed up over a comparable period of time. The influences of systemic disease, operative skill, initial visual acuity and residual field configuration are discussed and are shown to play no large part in these comparative results. The conclusion is drawn that in eyes with advanced chronic simple glaucoma of this degree, central vision may be retained for relatively long periods in spite of tension inadequately controlled, and that in such cases, operation to reduce the tension may be contraindicated. 3 references. 1 figure.—*Author's abstract.*

Goniotomy In Treatment of Congenital Glaucoma. *Harold G. Scheie, Philadelphia, Pa.* Arch. Ophth. 42: 266-82, Sept. 1949.

The results obtained from goniotomy in the treatment of 16 eyes with congenital glaucoma, 2 of which were associated with nevus flammeus, are reported. The tension was normalized in 11 eyes and good visual function was retained. The tension was not controlled in 3 eyes but the disease was far advanced and the eyes blind or practically blind before goniotomy. Failure also occurred in both eyes of a child who had bilateral congenital glaucoma associated with nevus flammeus of the face and eyelids. This may represent a condition in which goniotomy is contraindicated as suggested by the preoperative gonioscopic picture of anomalous vessel formation on the iris and ciliary body. All of the patients have been followed postoperatively for two years or longer. Although the number of eyes is small, the observations are in accord with those of Barkan. 13 figures. 1 table.—*Author's abstract.*

Glaucoma and Orally Administered Belladonna. *Egon V. Ullman, M.D. and Frank D. Mossman, M.D., Portland, Oregon.* Northwest Med. 48: 245, April 1949.

The authors show that the prolonged oral use of extract of belladonna can produce acute congestive glaucoma as well as preglaucomatous states of the eye. They suggest that steps should be taken by the Society for

Prevention of Blindness to make prescriptions for extract of belladonna and tincture of belladonna subject to regulations so that they cannot be refilled without the prescription of a physician.—*Author's abstract.*

15. Lacrimal Apparatus

Modern Concepts of Treatment in Disorders of the Lacrimal Apparatus. *Ralph O. Rychener, M.D., Memphis, Tenn.* Minnesota Med. 32: 991, Oct. 1949.

When one has practiced a specialty in medicine for more than twenty-five years, he is certain to have witnessed many changes in the interpretation of diseases in his particular field, for the practice of medicine is an ever-changing and never-exact science. In the author's personal experience in the small field of lacrimal disease, several noteworthy changes in treatment have been observed. It seems worthwhile to record some of them.

In congenital stenosis, where formerly either no treatment at all was advised, or it seemed advisable to pass giant Ziegler probes after slitting the upper punctum, the modern concept is to pass tiny 0 or 00 Bowman probes in the first few weeks or months, with the result that one or two treatments cure a condition which, by delay, may result in acute dacryocystitis with all its complications, including osteomyelitis of the maxilla, which the author has personally witnessed.

Epiphora used to be managed by slitting the canaliculus even though a real constriction of the lacrimal duct could be demonstrated, with the result that tearing always persisted even though the real pathologic condition in the duct was corrected. Lacrimation due to hypersecretion is now attacked at its source, either by x-ray therapy directed at the gland to diminish its output, or by cocainization or alcohol injection of the sphenopalatine ganglion to obstruct the nerve supply to the gland, as the tears are frequently increased by irritating lesions in the nose. Epiphora due to senile ectropion requires correction by one of the accepted treatments of lid shortening, but when it is due only to outward displacement of the lower punctum, a few well-placed iegler cautery punctures will yield a most satisfactory result.

Hyposecretion, as evidenced by keratitis sicca, is well managed by closure of the puncta with the actual cautery, whereupon the mucous glands of Krause furnish enough lubrication to keep the cornea moist and comfortable. It is well to seal off only the lower punctum at first, as lacrimation may be sufficient to cause tears to stand constantly in the eyes if too-enthusiastic treatment is employed. The upper punctum can always be closed at a later date if necessary.

As a resident, the author was taught no surgical procedure on the lacrimal sac other than excision, which of course never cured chronic dacryocystitis, as the canaliculi still remained to act as potential sources of infection for the debilitated cornea. Dacryorhinostomy of one form or other has been the greatest advance in this field in the past twenty-five years and there no longer exists any excuse for any other procedure, provided

the passageway from the punctum to the sac is intact. The evidence of any mucocele in the lacrimal sac, no matter how small, is an indication for such therapy, and one should not hesitate even though only one canaliculus, and that an upper, is intact.

Because of its good results in his hands, the author prefers the Dupuy-Dutemps dacryorhinostomy as modified by Chandler, which provides a three-sided tunnel of mucous membrane less likely to be occluded by bony ingrowth as is the case in the original technic. All ethmoidal cells which happen to be in the way should be completely exenterated and care should be taken not to close the mucous membrane of the lacrimal sac with that lining an ethmoidal cell, as the author once discovered when re-operating on a patient for a colleague whose first plastic procedure was a failure. A large bony window is desirable, at least 10 x 12 mm., or preferably more, as it facilitates the handling of the flaps. Special atraumatic sutures and a small mosquito hemostat as a needle holder are refinements which have been found valuable and time-saving. This operation is feasible at any age, as the author has employed it from 18 months to 72 years, with complete satisfaction to all.

The history of lacrimal sac surgery is reviewed by illustrations and salient points of each procedure are explained. A number of allied affections of the lacrimal apparatus and complications in their treatment are demonstrated by Kodachrome slides.—*Author's abstract.*

The Dupuy-Dutemps Dacryocystorhinostomy. *Alton V. Hallum, M.D., Atlanta, Ga.* Am. J. Ophth. 32: 1197-1206, Sept. 1949.

A plea is made to substitute extirpation of the lacrimal sac by dacryocystorhinostomy. The author feels that the technic commonly known as that of Dupuy-Dutemps is easier to master for the ophthalmic surgeon, has fewer complications, requires almost no postoperative care, and gives the highest percentage of cures. The history of lacrimal sac surgery is reviewed briefly, and a detailed description of the technic of the operation, together with nine illustrations, is given. Some of the features emphasized are :1) the necessity of making a straight skin incision; 2) placing the bony window astride the anterior lacrimal crest; 3) making the bony window as far inferiorly and forward as possible; 4) the use of the gouge and mallet to make the bony opening; 5) while removing bone with the gouge, making long thin successive slices of bone, etc.

When the nasal lacrimal sac is occluded at any level, the only contraindication for dacryocystorhinostomy is the presence of malignancy of the sac or tuberculous infection of the sac, providing the canaliculi and puncti are patent. If the canaliculi and puncti are patent, the surgeon should expect cures in at least 95% of his cases. A follow-up study of 60 operations is included. 23 references. 9 figures.—*Author's abstract.*

16. Eyelids

Surgical Repair of Neurofibromatosis of Eyelid. *Max M. Kulvin, Hines, Ill.* Am. J. Ophth. 32: 1231-44, Sept. 1949.

Although the literature fully covers the pathology and histology of plexiform neuromata, its surgical treatment has been neglected to an astonishing degree. In view of this fact, the first such case encountered in 1940 at the U. S. Veterans Administration Hospital, Hines, Ill. presented almost a pioneer approach in the attempted solution of the problem. Several facts have been established regarding the treatment of neurofibromata: 1) x-ray treatment is of no value; 2) anesthesia may be either local or general; 3) dissection of the tissue, removal of all neoplasm, prevention of unnecessary scarring, and conservation of as much skin, tarsal plate and hair line as possible is advised; 4) cartilage grafts are frequently necessary; 5) best results are obtained in those cases in which the various surgical procedures have been done with a fair interval of time intervening between each operation.

Von Recklinghausen's disease is in that group of diseases resulting from developmental abnormalities of the ectoderm and mesoderm. The condition is congenital. It is characterized by tumors of the skin and cutaneous pigmentation such as the "café au lait" spots. Histologically, the tumor consists of tangled reticular tissue of Type A or Type B as described by Antone. There is definite evidence of a hyperplastic reaction due to an irritant or stimulating influence, followed subsequently by the appearance of neoplastic growth of these cells. Treatment consisted in one case of removing an abnormally large lipomatous mass adjoining the lid, splitting the upper lid, removing a wedge-shaped piece of tarsus and membrane, closing up the defect, excising sections of the skin of the lid, elevating the central ribbon of skin underneath a tunnel prepared in the upper lid and anchoring it above the superior orbital ridge, thus elevating the upper lid to about 2 mm. below the upper limbus. In the second case where no tarsal plate was present, the lower lid was split as well as the upper, and the tarsus and membrane of the lower lid were anchored between the skin and mucosa of the upper lid. The upper lid was then elevated by means of a fascial sling inserted in tunnels prepared in the upper lid and anchored, after elevating the lid to the proper position at the superior orbital ridge. 27 references. 2 figures.—*Author's abstract.*

A Variation of the Procedure of Motais for the Operation for Ptosis: The Procedure of Dickey. Personal Contribution to the Technic (*Une variante de procédé de Motais pour l'opération du ptosis: Le procédé de Dickey. Contribution personelle à son execution*). *Hoang-uan-Man, Paris, France.* Arch. opht., Par. 4: 441-53, July 1949.

This paper reviews briefly the history of operations for ptosis. The procedure described by Dickey is one of those operations designed to substitute the superior rectus for the levator muscle. Dickey employed a fascia lata sling to hold the superior rectus in position; he obtained the fascia lata from the patient at the time of the operation. The author has modified

this procedure by the use of preserved fascia lata, which has given qually good results, in his experience, as the use of the fresh fascia lata, and has reduced the time necessary for the operatie procedure. Three cases are reported. 16 references. 8 figures.

17. Orbit

Rare Case of Injury to the left Maxillary Sinus and Orbit (*Eine seltener Fall von Verletzung der linken Oberkieferhöhle und Augenhöhle*). *Richard Schönfelder.* Klin. Mbl. Augenh. 114: 542, 1949.

An 11-year-old boy fell into a bush, and an injury of his left maxillary sinus caused an outward displacement of his left eye. A fistulous wound was discovered just below the left inner canthus leading into the maxillary sinus. Exploration revealed 8 splinters of wood (10 mm. thick and from 10 to 20 mm. long) in the sinus and orbital cavity. Immediately following their removal by the oral route, the eye returned to its normal position. The wound healed by primary intention, leaving normal function of the eye.

Extra-orbital Meningomyelocele (*Meningo-Myelocoele Extra-orbitaire*). *J. Sirois.* Laval méd. 14: 289-95, Mar. 1949.

An intermittent soft swelling appeared on the left side of the bridge of the nose of a one-year-old boy. It grew in size gradually, and at eighteen months it became permanent. Roentgenograms, at 2 years of age, showed no destruction of bone and increase of the soft tissues in the region. The content of the mass was a clear fluid containing sugar. Methylene blue injected by lumbar puncture appeared in the cyst. The cystwas dissected by the external route. During the dissection it broke and a large amount of fluid was lost. The neck of the sac was traced to the bony opening in the skull, which was closed by bringing together neighboring periosteum. Recovery was uneventful. 3 references.

Prerequisites for Spontaneous Involvement of Eyelids and Orbits in Diseases of the Accessory Nasal Sinuses (*Voraussetz-ungen einer spontanen Beteiligung von Lidern und Orbita bei den Erkankungen der Nassennebenhöhlen*). M. *Schwarz, Karlsruhe.* Klin. Mbl. Augenh. 114: 535-41, 1949.

Palpebral edema, chemosis, abscess of the eyelid, fistula, protrusio bulbi and orbital phlegmon, as well as diplopia and visual disturbances, are frequently associated with sinus disease. The orbit and eyelid are involved in 1.0 to 6.9% of cases of sinus disease or five times as frequently as in cases of benign tumor and three times as frequently as in cases of malignant tumor. Inflammatory diseases are more common in young subjects, and the neoplastic conditions are more common in the older age group. Among the anatomic factors responsible for the involvement of the lids and orbits in sinusitis may be mentioned the small perforating veins passing through the lamina papyracea and the lymph vessels. The orbit and ethmoid

sinus are connected through the ethmoid foramen, and the sphenoid sinus and postethmoid cells through the optic foramen. A bony dehiscence plays only a minor part in the spread of infection, and was demonstrated in only 0.45% of cases. In 64 cases of infection of the orbits and eyelids seen at the Frankfurt Clinic from 1936 to 1946, primary acute disease of the nasal sinuses was demonstrated in 46.3%, acute exacerbations or acute recurrences of chronic disease of the sinuses in 31.7%, and chronic sinusitis in 22%. Chronic inflammation produces a rarefying osteitis and contact infection, a necrotic osteitis. A perivascular and perineural as well as thrombophlebitic extension of the infection occurs.

Benign tumors may cause displacement of tissues with resulting obstruction, and malignant tumors lead to neoplastic infiltration and osteoclasia. Besides the natural avenues of extension, newformed paths in the bones may be demonstrated roentgenologically also. Mechanical features such as fracture, dental empyema, gravity, and swelling of the mucosa may be seen, as well as pneumocele or mucocele, and surgical mutilation, involving displacement of the nasofrontal duct or one of the ethmoid ostia. Pressure by tumors may cause stasis of orbital veins with edema of the lids or exophthalmos.

Following traumatic injury, immediate swelling of the eyelid upon attempting to blow the nose indicates fracture of the lamina papyracea, or of the base of the frontal sinus, or vault of the maxillary sinus. It is emphasized that other constitutional factors, such as individual variation in the development of the cranial sinuses, inherited susceptibility of the mucosa and individual peculiarities of the mesenchyma may play a part. Palpebral edema, protrusio bulbi, phlegmons and abscesses are more common following acute sinusitis, while fistula occurs more frequently following chronic sinusitis. 20 references.

18. Allergy

Psychogenic Aspects of Allergy. *Johnny A. Blue, Oklahoma City, Okla.* J. Oklahoma M. A. 42: 277-81, July, 1949.

In this paper the author stresses the following points as being pertinent in the relation of allergy to psychiatry.

Some aspects of medicine, like styles, seem to run in cycles. Prior to the era of bacteriology, the theories of the nervous origin of diseases were frequently in vogue. Medicine as a whole is now in a "psychosomatic" whirl, and allergy is drawn into the maelstrom with many other diseases; for example, rheumatism. As we approach the extremes, then perhaps we will revert to normal again in allergy as in styles.

With 10% of the population said to manifest some major form of allergy, it stands to reason that a certain percent of these will come under the category of psychiatric disorder. However it is my opinion that allergic patients who deny conflict, give misleading explanations, fear personality study, practice vagueness and evasiveness and sabotage treatment, all of which are psychosomatic traits, are in the minority. "There are no

convincing reports in the literature of any allergic condition having received any more relief from psychiatric treatment than would have otherwise occurred from wise counseling from the allergist." Vaughan's citation of an asthmatic patient who was sensitive to roses having had a violent attack on smelling an artificial rose has become a classic in psychosomatic explanation of allergy. Is this any different than the shyness of a man or horse from a noise resembling the rattle of a rattlesnake, when they have had adverse experiences with such reptiles before?

Allergic patients with neurotic tendencies should be managed by the allergist and not a psychiatrist because the condition is generally twofold and the allergist should have a better insight of the patient as a whole. There should be a closer physician-patient relationship in managing allergic conditions. Chain-line mass production management of such patients is conducive to the development of psychogenic factors. There is a large psychogenic factor to be dealt with in the management of allergic conditions, but it probably does not surpass greatly many other diseases, and as the veil of mysticism is further lifted and the science of allergy pulls further away from the faddist's waste basket stage of medicine, this psychiatric trend will probably decrease. There are psychotic patients with allergic manifestations but they are in a very small minority. It is doubtful that the psyche alone ever produces true allergic symptoms. There must be an underlying allergy, either active or dormant, which becomes aroused and aggravated by nervous stress and strain. 16 references.—*Author's abstract.*

(*Nervous exhaustion, mental fatigue, and emotional stress all tend to aggravate the allergic manifestations in an allergic patient. This reaction is most likely due to the disturbing effect on endocrine functions. One must not lose sight of the tremendous effects that a severe allergic reaction may have on the nervous system and the emotional state in many patients. In severe allergic reactions, the patient may become depressed and apprehensive, and these symptoms are then attributed to psychosomatic disturbance when, in reality, they are the effects and not the cause.*—A. N. L.)

19. Pharmacology, Toxicology and Therapeutics

Ocular Disturbances Occurring in Miliary Tuberculosis and Tuberculous Meningitis and Their Treatment with Streptomycin (*Oogletsels optredend bij granulie en tuberculeus meningitis en hun behandeling met streptomycine*). *M. Appelmans and A. De Graeve.* Belg. tschr. geneesk. 5: 685-97, Aug. 1, 1949.

Ophthalmologic findings are an aid in the early diagnosis of tuberculous meningitis and miliary tuberculosis, especially in doubtful cases. A choked disk suggests meningitis. Hydrocephalus is often ushered in by swelling of the disks. The present series of cases included 131 patients with miliary tuberculosis or tuberculous meningitis. The dose of streptomycin administered in miliary tuberculosis was 20 to 30 mg. per Kg. intramuscularly for four to five months, combined in tuberculous meningitis with intraspinal injection of 100 mg. of streptomycin daily or every other day. In

71% of the 84 cases of miliary tuberculosis a miliary choroiditis was observed, but not a single case of miliary or exudative iritis. The lesions were bilateral in 75% of the cases. Of the 18 unilateral cases, 5 were on the right side and 13 on the left side. In 50% of the cases there were no more than 5 foci. One patient had 40 foci. In 60 cases of miliary choroiditis, new foci developed during treatment in 20 instances. New efflorescences appearing during antibiotic therapy have a prognostic significance. Towards the third week of streptomycin therapy, the retinal edema subsided, indicating the first phase of retrogression, and after six to eight weeks many foci disappeared altogether or left only a white atrophic area in the terminal phase of retrogression. In some cases, retrogression was much slower. Two cases are described in detail.

In 50% of the series, miliary tuberculosis was associated with meningitis, both being of hematogenous origin. The eyes and vision are not necessarily involved in tuberculous meningitis, but have been found affected in 45 to 58% of cases. Papillary edema was noted in 69 of 116 cases of tuberculous meningitis, the highest incidence being in cases of combined miliary and meningeal tuberculosis. Nine cases are reported in detail.

Streptomycin brought improvement in all cases. Most of the miliary foci disappeared and a follow-up six months after treatment found 50% of the patients alive. In one case a transformation of acute miliary to chronic chorioretinitis occurred. The prognosis of acute miliary tuberculosis is better than that for the combined miliary and meningeal forms. In miliary choroidal lesions, streptomycin therapy causes a disappearance of the foci with no significant sequelae. The results in tuberculous meningitis are also favorable, but a residual discoloration of the disk is common. The results obtained with streptomycin are better than those reported by other methods. The focal reaction to tuberculin may cause incurable visual disturbances. Methylic antigen is a helpful adjunct and vitamin D and calcium have yielded good results in tuberculous sclerokeratitis. Small doses of roentgen rays and stimulation of the reticuloendothelial system of the uvea have a favorable effect also, but none of these methods can compare with streptomycin, which seems to weaken the bacilli to such an extent that the phagocytes can ingest them. 21 references. 1 colored plate.

The Use of Bucky-Rays in Ocular Diseases. *A Bucky-sugarak szemészeti alkalmazása. P. Mezey, University Eye Clinic No. 1., Budapest, Hungary.* Szemeszet 86: 77-9, 1949.

The Bucky-rays showing similar characteristics to those of ultraviolet rays are extremely suitable for treatment of superficial eye diseases, due to broad tolerance of tissues and to their high absorption. The technic used was as follows: distance, 2½ cm., diaphragm, 20 mm., 10 V, 4 mA. Dosage: 100 to 400 r units, every second day, totalling 600 to 1,600 r; 54 patients were treated. Good effects were obtained in blepharitis, while the results in corneoscleral conditions were not convincing. 11 references. —*de Grósz.*

20. Miscellaneous

ANISEIKONIA PATENTS DEDICATED

The United States Patent Office has announced that the Hanover Institute, Hanover, N. H., does "assign, transfer, give, and dedicate the following Letters Patent and the inventions therein specifically claimed to the people of the United States of America for public use forever."

The patents listed below were granted while the Dartmouth Eye Institute was mainly interested in problems of binocular vision, especially aniseikonia. With the Institute having fulfilled, so far as possible under the prevailing circumstances, its task of investigating, calling attention to, and initiating treatment of aniseikonia, it is believed to be in the best interest of everyone concerned to dedicate to the public the intellectual material contained in these patents.

While the subject matter of the patients has been dealt with in the professional literature (for example, see Arch. Ophth., vol. 40, 1948, 169-175), nevertheless, these patents contain much information not presented in that literature such as data of detail construction, specific methods of testing, and psychophysiological background material.

Copies of the patents may be obtained from the United States Patent Office, Washington 25, D. C., at 25 cents each.

RE. Pat. 19,841. CLINICAL OPTICAL MENSURATION METHOD AND INSTRUMENT. Reissued Feb. 4, 1936. (Original Pat. 1,944,871, dated Jan. 30, 1934.) "Eikonometer" for measuring size differences by means of targets permitting direct comparison of dimensions of the ocular images; may be combined with the haploscope according to Pat. 1,946,925.

Pat. 1,908,296. OPTICAL CORRECTION OF CYCLOPHORIA. Patented May 9, 1933. "Cyclophoria Spectacle" including a mirror, for correcting defects connected with rotational phoria.

Pat. 1,933,578. EYEGLASSES FOR CORRECTING RETINAL IMAGE ASYMMETRY. Patented Nov. 7, 1933. The basic "Aniseikonic Spectacle" patent.

Pat. 1,946,925. CLINICAL OPTICAL MENSURATION INSTRUMENT. Patented Feb. 13, 1934. All purpose haploscope with half silvered mirrors and targets for objective measurement of refractive errors and phorias; suitable for combination with eikonometers such as according to Re-issue No. 19,841.

Pat. 1,954,399. EYE TESTING INSTRUMENT AND METHOD. Patented Apr. 10, 1934. "Horopter Instrument" for measuring aniseikonia by means of a horopter detecting set-up.

Pat. 2,063,015. EYE TESTING INSTRUMENT. Patented Dec. 8, 1936. "large Eikonometer"; a haploscope instrument similar to Reissue No. 19,841 but with projected targets for simultaneous observation of various defects; refinements of adjustment and control.

Pat. 2,087,234. OPHTHALMIC LENS. Patented July 20, 1937. Collateral aspects of the subject matter of Pat. 1,933,578.

Pat. 2,087,235. METHOD OF CORRECTING OCULAR ERRORS. Patented July 20, 1937. Collateral testing and prescribing aspects of Pat. 1,933,578.

Pat. 2,095,235. METHOD AND INSTRUMENT FOR TESTING EYES. Patented Oct. 12, 1937. "Parallax Eikonometer", inherently accurate because the images are differentiated through a common mask determining their pattern.

Pat. 2,107,305. ADJUSTABLE LENS SYSTEM. Patented Feb. 8, 1938. "Adjustable size lens"; continuously variable lens system for measuring size differences in the range that occurs in aniseikonia.

Pat. 2,114,282. TESTING OPHTHALMIC LENSES. Patented Apr. 19, 1938. "Lensometer"; instrument for accurately checking the effect of aniseikonia spectacle lenses.

Pat. 2,118,132. CORRECTING OCULAR DEFECTS. Patented May 24, 1938. "Prismatic Lenses"; prism glasses effecting "distortion without deviation" and "deviation without distortion" while not affecting image distance.

Pat. 2,118,173. ISEIKONIC SPECTACLES AND THEIR MANUFACTURE. Patented May 24, 1938. A practical prescription technique which was actually employed for some time before the "free size surface" technique (compare Pat. 2,131,232) came into use. The aniseikonia lenses are defined with reference to the actual principal meridians as to astigmatism, and with reference to fixed axes as to size. Several collateral features are described.

Pat. 2,124,457. TESTING EYES. Patented July 19, 1938. Set of size testing lenses; used before the "Adjustable Size Lens" came into use; but interesting in relation to any use of individual test lenses, for example, in rotating discs.

Pat. 2,126,713. TESTING BINOCULAR VISION. Patented Aug. 16, 1938. Eikonometer tests without fixation object; useful in certain difficult cases; collateral to Reissue 19,841 which relies on a fixation object.

Pat. 2,131,232. CORRECTING BINOCULAR VISION. Patented Sept. 27, 1938. Prescription technique based on the concept "free size surface"; various refinements which are important for purposes of practical prescriptions including fitovers. Design of lenses with reference to the actual size as well as astigmatic meridians.

Pat. 2,147,957. EYE TESTING INSTRUMENT. Patented Feb. 21, 1939. "Simplified Eikonometer": similar to the earlier haploscope type instruments, but with simplified mechanism, especially as to changing the viewing distance.

Pat. 2,149,897. TRIAL LENS. Patented March 7, 1939. Power trial lens set for use with size test lenses; collateral features of eliminating undesired magnification effects.

Pat. 2,168,308. TESTING PERCEPTION OF SPACE. Patented Aug. 8, 1939. "Tipping Field" eikonometer; testing for size difference by comparing uniocular and binocular localization.

Pat. 2,183,028. TRIAL LENS. Patented Dec. 12, 1939. Power trial lens set wherein superimposition of two elements (such as sphere and cylinder) does not introduce undesirable magnification.

Pat. 2,230,993. CORRECTING OCULAR DEFECTS. Patented Feb. 11, 1941. "Oblique Meridian Size Lenses"; correction of obliquely meridional aniseikonia by means of size cylinders.

Pat. 2,238,207. TESTING EYES. Patented Apr. 15, 1941. "Projector Instrument"; technique of testing with superimposed optically differentiated (particularly polarized) images; deals not only with size but all other irregularities including refraction tests with charts; targets and projection slides designed for observation with polarized light; introduces "peripheral fusion" tests.

Pat. 2,256,587. CORRECTING OCULAR DEFECTS. Patented Sept. 23, 1941. "Size Contact Lenses"; combinations of contact and conventional lenses for correcting aniseikonia, especially also as caused by aphakia.

Pat. 2,294,382. BINOCULAR EYE TEST. Patented Sept. 1, 1942. "Malingering Test" with both polarizers and analyzers arranged before the eyes; permits tests other than for malingering.

Pat. 2,340,856. DEMONSTRATING AND TESTING VISUAL SPACE PERCEPTION. Patented Feb. 8, 1944. The "Leaf Room" eikonometer; apparatus for demonstrating and detecting abnormal space perception; also permits at least approximate measuring of aniseikonia.

Pat. 2,119,939. BINOCULAR VISION TEST. Patented May 6, 1947. The "Space Eikonometer"; an especially designed three dimensional test object which permits demonstration, detection, and measuring of aniseikonia; especially valuable for differentiation of the main types of aniseikonia.

The Inverse Square Law of Illumination. *J. I. Pascal.* Optometr. World 37: 21, March, 1949.

The fundamental law that the intensity of illumination varies inversely as the square of the distance must be used with a certain degree of caution. The law holds good for a point source or when the source is very small relative to the distance. When the source is exceedingly large, it does not hold true at all. Thus, for a given size source, the illumination on a surface decreases slowly as the surface is moved away, then decreases more rapidly until at a distance about 10 times, or at least 5 times the size of the source, the inverse square law begins to operate. In addition, the inclination of the light source to the screen must be considered, as the intensity follows the "cosine law of radiation", and the illumination diminishes proportionately to the cosine of the angle of inclination.—*Author's abstract.*

When Does Visual Discomfort Arise? *Leo Manas.* Optometr. Week. 40: 443-45, March 1949.

Visual discomfort involves the whole organism, is a product of the central nervous system, and protects the organism against impairment of vital processes. It is contended that visual discomfort arises when the environmental demand exceeds the visual performance of the individual.

Environmental demand refers to the total visual demands of the environment which include the social, recreational, and vocational demands. Visual performance refers to the sum total of all the visual abilities (skills) possessed by the organism. The author illustrates the various mechanisms utilized by the organism in order to escape visual discomfort.—*Author's abstract.*

(It is now generally recognized that visual discomfort is due to cerebral fatigue rather than to local fatigue of extra-ocular or intra-ocular muscles. —E. B. D.)

Colour Vision of Heterozygotes for Sex-linked Red-Green Defects. *R. W. Pickford, Glasgow, Scotland.* Nature 163: 804-05, May 21, 1949.

Sex-linked red-green color vision defects are incompletely recessive, since the heterozygotes for these defects and the normal condition usually have small red-green defects themselves. It would be expected that these heterozygotes might show small defects of the same kinds as those of their major defective relatives. In studying the color vision of 73 women who had major defective relatives, this hypothesis was supported. The women relatives of protanopes and deuteranopes tended to have abnormally large thresholds for the distinction of red and green from yellow, while those of the green anomalous tended to have slight green deviations, in the anomaloscope. There was also a tendency for the women relatives of protanopes to show red deviations and those of deuteranopes to show green deviations. The possibility was not confirmed that women relatives of protanopes might show a slight darkening of the red end of the spectrum. —*Author's abstract.*

Industrial Vision Program—Three Years' Operation. *G. Luther Weibel.* Optometr. Week. 39: 1709-1713. Aug. 1948.

The Bausch & Lomb Industrial Vision Program, based largely on findings made with the Ortho-Rater, a nonclinical instrument for testing visual performance, was installed at Magnet Mills, Inc., manufacturers of women's hosiery. The purpose of the program was to place employees in jobs for which they were visually fitted.

Some of the benefits of the program are these: important improvements have been made in increased production, quality, and worker income and in reduced spoilage. Poor visual performance provides a reason for rejecting applicants when it would be awkward to do so on other grounds. Visual performance-testing stimulates good public relations. It facilitates the hiring of qualified veterans, a training program for knitter operators having produced phenomenal results. Foremen and supervisors are in favor of it. Absenteeism has been sharply reduced because of improved health. Ninety-eight per cent employee cooperation is obtained on a voluntary basis. The program stimulates interest in personnel activities and permits greater contact with employees, thus reducing the filing of formal grievances. The program has permitted wide coverage of personalities in

the company's employee publication. With other hiring facilities, it makes possible fairly accurate predictions of employee success on the job.

The program permits the selection of employees potentially capable of learning their jobs quickly from a visual standpoint. Before we adopted the program, for example, it took 43% more makeup pay to train a seamer than it does today; yet at the end of nine months our seamer learners are producing 22% more work. Employees learn quicker and reach higher production levels faster. Quality work protects our investment in machinery. The vision of employees on the job has been rehabilitated; moreover, as employees become visually better suited to their jobs, improved visual standards are provided. Current personnel—particularly older people—have become more efficient and improved their "workability." Employees who meet the visual standards have fewer accidents; they have less absenteeism by approximately 35 to 50%. Because of interlocking departments, we cannot determine accurately our decrease in turnover, but our rate is far less than the national average. A few typical results are: among loopers meeting the standards, absenteeism decreased by 24%. Between 1945 and 1948, in two departments, 21 and 23% more employees, respectively, obtained professional eye care through the medium of glasses. Among loopers, those who met the standards made many fewer visits to the clinic than those who did not. Higher visual levels—up to 17%—were established between 1945 and 1948 as a result of eye care and improved selection methods.—*Author's abstract.*

Recent Advances in Ophthalmology (*Ujabb irányelvek a szemészetben*). *Stephen de Grósz, University Eye Clinic No. 1, Budapest, Hungary.* Orvosok Lapja 5: 694-96, Oct. 1949.

This is a postgraduate lecture in concise form. The problem of scotopic vision, color vision (Hartridge), intra-ocular circulation (Duke-Elder), are briefly reiewed. The diagnostic deelopment is discussed: x-ray measurement of the living eye (Sorsby), gonioscopy (Goldmann). In the field of pathology, retrolental fibroplasia, toxoplasmosis, Bang's disease and sarcoidosis are mentioned, especially the virus diseases of the eye, Behcet syndrome and epidemic keratitis. The new classification (Cumings) of retinal tumors is given. In therapeutics, antibiotics, sulfhydral-treatment, Chaoul's contact therapy and beta-irradiation (Iliff) are presented among operative questions, the value of nonperforating cyclodiathermy (Weekers), amniotic membrane grafts and fixation of surgical wounds by aid of thrombine de Grósz are described.—*de Grósz.*

Headaches Due to Isolated Cerebroretinal Hypertension (*Les céphalées de l'hypertension cérébro-rétiniene solitaire*). Gaston Giraud, Montpeller. Schweiz. med. Wschr. 79: 884-Z87, Sept. 24, 1949.

Headaches due to isolated cerebroretinal hypertension with no general hypertension are not uncommon. Occasionally pseudo-isolated types may be observed camouflaged by the early stages of some progressive disease, such as arteriosclerosis, hypertension, or brain tumor. In other cases,

the syndrome may be due to some localized lesion producing regional sympathetic disturbances associated with slight metabolic or general neurotonic disturbances. The syndrome may be transitory, slowly progressie or stationary. Due to venous hypertension, various conditions may develop, such as retinal vascular sclerosis, embolism, spasms, neuritis or glaucoma. The syndrome may thus represent the latent stage of a serious disease, a benign condition, or a functional disturbance. These headaches are often worse at night or upon awakening, or during digestion. The pain is exacerbated by bending forward and on exertion in some cases, but not in others. It is usually occipital but occasionally temporo-occipital or diffuse. It is frequently the only subjective symptom complained of, but may be found in association with various encephalic symptoms, functional disturbances of the eighth nerve, vertigo or tinnitus, as well as visual disturbances such as transitory amblyopia and photopsia. In rare instances there may be facial congestion or cerebral congestion with epistaxis or subconjunctival hemorrhages. Headaches of the type described are most common in middle age.

21. Book Reviews

Toxic Eye Hazards. *Prepared by the Joint Committee on Industrial Ophthalmology of the American Medical Association and the American Academy of Ophthalmology and Otolaryngology.* National Society for the Prevention of Blindness, Inc., publication 194, 101 pp. $1.00.

This book, prepared by an able joint committee, fills a greatly needed place and no practicing ophthalmologist should be without a copy. Fortunately, it has been written in such language that the layman as well as the physician can understand it. The rapid development of new chemical substances has presented problems in the prevention of eye injuries and the proper treatment of such accidents when they do occur. This little volume brings the subject up to date.

The first chapter describes the various types of protective equipment which are best suited to specific toxic and chemical accidents, and explains the setting up of efficient eye safety programs for various industries. Types of protective lenses, masks, cups, and hoods are described, as well as their care, adjustment and sterilization. Chapter 2 consists of 22 pages of tables naming the various organic and inorganic chemicals, with their trade names, and the symptoms and effects upon the eye This makes a valuable and quick reference for information which might require hours to find in text books and journals. Chapter 3 gives careful instruction for immediate treatment of accidents, the plant nursing staff, and when to refer cases to the ophthalmologist. Numerous illustrations and tables add to the value of this well printed and useful publication.—*Eugene M. Blake, M.D.*

Lectures on Visual Psychology. *Anna Berliner.* The Professional Press, Inc., Chicago, Ill., 84 pp., 184 illustrations.

These lectures were originally published in the Optometric Weekly during the years 1947 and 1948. They try to offer as much factual information as possible and to determine, at the same time, the general principles

that can order the results of the experimental work. The old material of classical psychology has been evaluated for its importance in today's thinking and the fruits of the Gestalt school have been followed up to the present.

Four fields have been considered: 1) the unification and differentiation of the isual experience; 2) the figure-ground organization; 3) the influence of figural material on other figures that are present at the same time or follow; 4) the organization of unified half-views.

In many fields a new approach has been attempted. Thus in the third chapter the old problem of the geometrical illusions has been attacked on a much wider basis than before. The classical psychology started from the assumption that all our seeing is in accordance with the measurable properties of the objects and is therefore unable to incorporate the geometrical illusions into its general structure. The Gestalt school was satisfied to show that this material demonstrates their fundamental principles. These lectures go beyond the recent attempts to find general principles that cover large groups of constellations. It is hoped that such research will eentually lead to a geometry of the experienced space.

The last chapter discusses the field generally called binocular seeing. As in the other chapters, the observation starts from the distal stimulus. General principles have been developed which allow a prediction so that isolated well-known textbook figures like Wheatstone's cone and truncated pyramid follow from measurable variations of the distal stimulus, and some of the old problems like the Wheatstone-Panum phenomenon find their place. Once such functional connections are established the influence of figural factors can be studied against the objective expected phenomena. Throughout the text three-dimensional seeing is assumed to be the general function, whereas two-dimensional seeing is considered the specific case that occurs only under special conditions. Such an assumption leads to a reinterpretation of some of the experimental work that started with the question of how depth is achieved.—*Glenn A. Fry, Ph.D.*

A Child's Eyes. *Richard G. Scobee, M.D.* C. V. Mosby Co., St. Louis, Mo. 1949.

This popular presentation on the child's eyes stresses the nature and treatment of crossed eyes. The parents of the child with crossed eyes worry about the problem and receive strange answers to their questions. The author maintains that successful treatment of crossed eyes demands the closest cooperation between the parents and physician. Since the parents' knowledge is relatively limited, the resulting explanations are often inadequate. Parents are left with a feeling of uncertainty about the nature and course of their child's crossed eyes. Consequently, this book is an indispensable adjuvant for such parents. It spares the physician the embarrassment of inadequate knowledge and provides the parents with the answers to the questions which they invariably ask. The author discusses the effect of crossed eyes on the child's personality, the treatment of divergent eyes, the ill effects of crossed eyes, the role of glasses in helping crossed eyes, eye exercises and specific operations in the treatment of crossed eyes.

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